

Exploring New Frontiers in the Life Sciences

Protein Science

Published for the Protein Society, **Protein Science** is dedicated to the exploration of all scientific aspects of protein molecules, the 'building blocks of life'. Appearing monthly this innovative journal presents research by leading scientists, encompassing many research settings and methodologies, and cutting across restrictive disciplinary lines. The wide scope of **Protein Science** includes the structure, function and biochemical significance of proteins, their role in molecular and cell biology, genetics and evolution, as well as their regulation and mechanism of action.

Electronic Protein Science

As a leading innovator in scientific publishing technologies, **Protein Science**, now publishing Volume 5, is continually enhancing its electronic dimension. For 1996, it will have on-line text and graphics, providing faster publication and greater access to original proteins research.

Members of The Protein Society have access to the 1996 electronic edition without additional charge.

Features

- Full length original research papers & shorter contributions
- On the Record – concise reports of recent developments
- Recollective series – significant discoveries & how they influenced the subsequent course of scientific pursuits are recalled
- Rapid publications
- Lists of forthcoming papers
- Corporate members news
- Calendars of meetings

Subscription Information

Volume 5, 1996 monthly with 12 diskettes: £415/\$705; £125/\$195 for individuals. Subscription price includes airmail/airspeeded delivery. All members of The Protein Society will receive **Protein Science** as part of their membership.

For information via the Internet contact:
<http://www.prosci.uci.edu>

For further information or a free sample copy, write to: Journals Marketing Department, Cambridge University Press, The Edinburgh Building,
*FREEPOST, Cambridge, CB1 2BR, UK

Tel: +44 (0)1223 325806

Fax: +44 (0)1223 315052

Email: journals_marketing@cup.cam.ac.uk

In USA, Canada & Mexico write to:
Cambridge University Press, 40 West
20th Street, New York, NY 10011, USA



CAMBRIDGE
UNIVERSITY PRESS

Announcing a major new monthly journal!

RNA

The Official Publication of The RNA Society

RNA, the official publication of the new RNA society, provides a rapid publication of significant original research in all areas of RNA structure and function in eukaryotic, prokaryotic and viral systems.

Editor

Timothy W. Nilsen, *Case Western Reserve University*

Associate Editors

Thomas R. Cech, *University of Colorado*
Chris L. Greer, *University of California, Irvine*
Christine Guthrie, *University of California, San Francisco*
Robert M. Krug, *Rutgers University*
Reinhard Lührmann, *Philips University, Marburg*
Dino Moras, *CNRS, Strasbourg*
James Ofengand, *Roche Institute of Molecular Biology*
Nancy Standart, *University of Cambridge*
Joan A. Steitz, *Yale University*
Marvin Wickens, *University of Wisconsin*

Editorial Board

John N. Abelson, *CalTech*
Sidney Altman, *Yale Univ.*
Brenda L. Bass, *Univ. of Utah*
Jean D. Beggs, *Univ. of Edinburgh*
Marlene Belfort,
New York State Dept. of Health
Donald M. Crothers, *Yale Univ.*
James E. Dahlberg,
Univ. of Wisconsin
Fritz Eckstein, *Max-Planck Inst.*
Michael R. Green, *Univ. of Massachusetts*
Richard B. Hallick, *Univ. of Arizona*
Daniel Herschlag, *Stanford Univ.*
Anita K. Hopper, *Penn State Univ.*
Alain Jacquier, *Inst. Pasteur, Paris*
Walter Keller, *Univ. of Basel*
Karla Kirkegaard, *Univ. of Colorado*
Adrian R. Krainer,
Cold Spring Harbor Lab.
Angus I. Lamond,
EMBL, Heidelberg
Tom Maniatis, *Harvard Univ.*
James Manlay, *Columbia Univ.*
Michael B. Mathews,
Cold Spring Harbor Lab.
Iain W. Mattaj, *EMBL, Heidelberg*
William H. McClain, *Univ. of Wisconsin*
François Michel,
CNRS, Gif-sur-Yvette
Peter B. Moore, *Yale Univ.*
Andrew Newman,
MRC Lab. of Mol. Biol.
Harry F. Noller, *Univ. of California, Santa Cruz*
Norman R. Pace, *Indiana Univ.*
Arthur Pardi, *Univ. of Colorado*
Hugh D. Robertson, *Cornell Univ.*
Michael Rosbash, *Brandeis Univ.*
Phillip A. Sharp, *MIT*
Aaron J. Shatkin, *CABN, New Jersey*
Yoshiro Shimura, *Kyoto Univ.*
Robert H. Symons, *Univ. of Adelaide*
Jack W. Szostak, *Harvard Univ.*
Ignacio Tinoco, Jr.,
Univ. of California, Berkeley
Glaucio P. Tocchini-Valentini,
CNR, Rome
Olke Uhlenbeck,
Univ. of Colorado
Jonathan Warner,
Albert Einstein Col. of Med.
Alan Weiner, *Yale Univ.*
Eric Westhof, *CNRS, Strasbourg*
Jo Ann Wise,
Case Western Reserve Univ.
Michael Yarus, *Univ. of Colorado*

Recent Articles Include. . .

Poly (A) polymerases in the nucleus and cytoplasm of frog oocytes: Dynamic changes during oocyte maturation and early development
Scott Ballantyne, Andrea Bilger, Jonas Astrom, Anders Virtanen, & Marvin Wickens

Interactions between the double-stranded RNA binding motif and RNA: Definition of the binding site for the interferon-induced protein kinase DAI (PKR) on adenovirus VA RNA
Paul A. Clarke & Michael B. Mathews

Self-assembly of a group I intron active site from its component tertiary structural domains
Jennifer A. Doudna & Thomas R. Cech

Translational control of maturation-protein synthesis in phage MS2: A role for the kinetics of RNA folding?
Herman Groeneveld, Karine Thimon, & Jan van Duin

A mutation at the universally conserved position 529 in *Escherichia coli* 16S rRNA creates a functional but highly error-prone ribosome
U.V. Santer, J. Czekaniak, S. Kansil, M. Santer, M. O'Connor, & A.E. Dahlberg

Crosslinking of an RNA hairpin to the human U1A N-terminal RNA binding domain
W. Tom Stump & Kathleen B. Hall

Intrinsic U2AF binding is modulated by exon enhancer signals in parallel with changes in splicing activity
Zhihuan Wang, Heidi M. Hoffmann, & Paula J. Grabowski

U6 snRNA function in nuclear pre-mRNA splicing: A phosphorophioate interference analysis of the U6 phosphate backbone
Yi-Tao Yu, Patricia A. Maroney, Edward Darzynkiewicz, & Timothy W. Nilsen

Subscriptions

RNA Volume 2, 1996 ISSN 1355-8382: Non-member individuals \$180/£168; Institutions \$360/£288

All members of The RNA Society will receive the journal as part of membership. Membership rates: regular members \$94, students \$47.

For additional information and membership application, contact:
The RNA Society, 9650 Rockville Pike, Bethesda, MD 20814-3998, USA,
Tel: 301-530-7120 Fax: 301-530-7049

For further information on manuscript submission contact RNA publication office at the first Cambridge University Press address given below or by fax (212) 645-5960, or by email: rna@cup.org

In the United States, Canada and Mexico send orders to:
Journals Department, Cambridge University Press, 40 West 20th Street,
New York, NY 10011-4211, USA, fax +1 914 937 4712.
email: journals_marketing@cup.org

Outside North America, send orders to: Journals Department,
Cambridge University Press, The Edinburgh Building, Cambridge CB2
2RU, UK, fax +44 [0]1223 325959,
email: journals_marketing@cup.cam.ac.uk



CAMBRIDGE
UNIVERSITY PRESS

Health & Medical Information

CD-ROM

ONE STOP MAIL ORDER SERVICE
for Health & Medical CD-ROMs

CD-ROM has quickly become a major vehicle for the transfer of medical knowledge with new titles being published every week. Healthworks can now provide you with a one-stop mail order service for medical CD-ROMs and other electronic publications.

The CD-ROM catalogue covers such subject areas as:

AIDS, Allergies, Anatomy, Anaesthesia, Dermatology, Gastroenterology, Genetics, Haematology, Health & Safety, Imaging, Immunology, Infectious Diseases, Nephrology, Neurology, Nursing, Obstetrics, Oncology, Ophthalmology, Pathology, Pharmacology, Paediatrics, Radiology, Rheumatology, Surgery and many more.

For your free copy of the Healthworks CD-ROM catalogue for both IBM PC compatibles and Apple Macintosh computers. contact us now on:

Tel: 0113 243 9899 Fax: 0113 247782

E-mail: sales@d-access.demon.co.uk

Healthworks

FOR FURTHER INFORMATION
ABOUT HEALTHWORKS MEDICAL
INFORMATION SERVICES & PRODUCTS
LOOK AT OUR INTERNET SITE AT:

<http://www.healthworks.co.uk>

HEALTH ON THE INTERNET

The Internet carries huge amounts of health related information but how do you find exactly what you want? **Health on the Internet** is a new publication that helps to solve some of the many problems encountered in locating health and medical information on the Internet. **Health on the Internet** is essential reading for medical professionals who are interested in utilising this powerful new medium for communication, research, or simply keeping up-to-date with the latest developments. Each issue includes details of:

sources of health news, medical software and images, new world wide web, ftp and gopher sites, newsgroups and mailing lists, health publications and businesses on the Internet. Plus, each issue also covers a particular area of medicine in depth.

Health on the Internet is published monthly in two formats:

1. In HTML format e-mailed directly to your desktop computer, with clickable hypertext links to the referenced resources.
2. The printed version, complete with 'hotlist' of all the referenced resources.

To see a sample copy of the newsletter visit the Healthworks Internet site at:

<http://www.healthworks.co.uk>

The E-mail version costs £26/\$45 worldwide.

The Print version costs: UK & EC member countries - £36/\$54. Rest of World - £60/\$90

Please make cheques/money orders payable to "Healthworks Limited" and send to:

Healthworks, (Dept. CUP1)

30-38 Dock Street, Leeds LS10 1JF, England

INSTRUCTIONS FOR CONTRIBUTORS

GENETICAL RESEARCH publishes original work on all aspects of genetics, or in any field of research which has an important bearing on genetics. Reviews of topical interest will also be considered. Papers will be submitted to referees, and will generally be printed in order of acceptance. Short papers (see below) will be given priority in publication.

CONTRIBUTIONS are welcomed from scientists of all nationalities but must be written in English. Papers should be sent to one of the Executive Editors (see addresses inside front cover), or to a member of the Editorial Board with a particular interest in that area of genetics. Submission of a paper will be taken to imply that it is unpublished and is not being considered for publication elsewhere. Papers should be as concise as clarity permits, and illustrations should be restricted to the *minimum needed*.

SHORT PAPERS This category is designed for concisely written reports of work for which rapid publication is considered desirable. Such papers will normally be published within three months of receipt in acceptable form. They should not exceed 4 pages of print in length, and should include a summary.

TYPESCRIPTS A top copy and two other copies should be submitted. The top copy should be typed with double-spacing on one side of good quality paper, leaving margins of about 1½ inches at the left-hand side and at the top and bottom of each sheet. Each copy should include a complete set of illustrations. The title should ordinarily identify the organism. The address of the laboratory at which the work was carried out will be printed with the authors' names at the head of the paper, and changes of address may be added in footnotes. A footnote to the title page should also give the name and address to whom reprint requests may be made. Sources of financial support should be included with other acknowledgements at the end of the text. The title page of the typescript should include a short title for running headlines (limited to 50 letters and spaces), and the name and address of the author (or his proxy) to whom the proofs are to be sent, under the heading: *Proofs to be sent to . . .* Main headings should be typed in capitals and (except summary and references) numbered consecutively. Subheadings should be typed in lower case, and underlined except for those words and symbols which would be italicized in the text. Subheadings should be numbered (i), (ii), etc., within each main heading. **Numeral 1 and letter e1: if your PC uses one symbol for both, please make clear to the printer which is intended in formulae, gene symbols, etc.**

SUMMARY The summary will be printed at the beginning of the paper. It should give a concise abstract of the significant content and conclusions of the paper, in a form suitable for abstracting journals to use, and should not exceed 250 words.

ILLUSTRATIONS All illustrations, including photographs, diagrams, graphs etc. are to be labelled consecutively Figure 1, 2 . . . according to their relative positions in the text. Each figure should have a legend to be printed underneath it. Photographs should be supplied as unmounted glossy prints, with a sketch or separate set to show the arrangement required when several photographs are to form one figure. The names of the authors and the orientation of the figure should be indicated on the back

of each photograph. *Diagrams* should be about twice the size of the printed figure, but not larger than 12 × 8 inches, unless exceptionally complicated, and the thickness of lines and size of points should be determined accordingly. They may be submitted as glossy photographic prints or be drawn. The lettering on drawings should be lightly inserted *in soft pencil only*, so that the printer can put in the finished lettering. Legends to illustrations must be given on a separate sheet of paper. Each illustration must have the name of the author and figure number pencilled on the back.

TABLES Each table should be typed on a separate sheet of paper and its approximate position in the text indicated on the typescript. Each should be numbered and carry an appropriate title. The table should be designed, whenever possible, to be printed in the normal orientation of the text. The data should be grouped so as to make the use of rules unnecessary. Vertical rules, in particular, are expensive to print, and will only be included at the Editor's discretion. Table footnotes should ordinarily employ the symbols *, †, ‡, §, ||, ¶, **, etc., in that order.

SYMBOLS Gene and mathematical symbols should generally be printed in italics. Please underline those to be italicized when they appear in the text and tables. Bold letters add to printing costs and should only be used where they are necessary to avoid confusion. The author must assume responsibility for the accurate printing of complex mathematical formulae submitted in typewritten form, by differentiating between letters and numbers which are open to misinterpretation, and identifying all Greek, Hebrew and script letters by means of marginal notes at their first appearance. Note that Greek symbols cannot be italicized and that '+' as the symbol for a wild-type allele should not be italicized.

NOMENCLATURE Wherever possible, standardized nomenclature should be employed. The author should refer to the following publications for guidance: Novick *et al.* (*Bacteriological Reviews* **40**, 168–189) for plasmids; O'Brien (Ed.), *Genetic Maps* **6**, Cold Spring Harbor 1993, for recent information on most species and recent gene lists.

REFERENCES should follow the normal usage in the journal. In the list of references at the end of the paper, *both titles of articles and names of periodicals* should be written out in full.

PROOFS Two sets of page proofs, together with the typescript of each paper will be sent to the author. The printers' marked proof should be returned after correction to the Executive Editor, together with the typescript. Excessive alterations, other than corrections of printers' errors, may be disallowed or charged to the author. Corrections should be made using the symbols in British Standard 1219: 1958, or its shortened version B.S. 1219C: 1958.

OFFPRINTS Fifty offprints of each paper, or short paper, are provided free of charge. Additional offprints may be ordered in the form sent out with proofs, provided this is returned within fourteen days of receipt.

Cambridge University Press

The Pitt Building, Trumpington Street, Cambridge CB2 1RP, UK
40 West 20th Street, New York, NY 10011-4211, USA
10 Stamford Road, Oakleigh, Melbourne 3166, Australia

Printed in Great Britain by the University Press, Cambridge

Genetical Research

Contents

- 93 COENEN, ALEX; CROFT, JIM H.; SLAKHORST, MARIJKE; DEBETS, FONS *and* HOEKSTRA, ROLF. Mitochondrial inheritance in *Aspergillus nidulans*
- 101 NAUMOV, GENNADI I.; NAUMOVA, ELENA S.; TURAKAINEN, HILKKA *and* KORHOLA, MATTI. Identification of the α -galactosidase *MEL* genes in some populations of *Saccharomyces cerevisiae*: a new gene *MEL11*
- 109 CORISH, P.; BLACK, D. M.; FEATHERSTON, D. W.; MERRIAM, J. *and* DOVER, G. A. Natural Repressors of P-induced hybrid dysgenesis in *Drosophila melanogaster*: a model for repressor evolution
- 123 FEL-CLAIR, FABIENNE; LENORMAND, THOMAS; CATALAN, JOSETTE; GROBERT, JACQUELINE; ORTH, ANNIE; BOURSOT, PIERRE; VIROUX, MARIE-CECILE *and* BRITTON-DAVIDIAN, JANICE. Genomic incompatibilities in the hybrid zone between house mice in Denmark: evidence from steep and non-coincident chromosomal clines from Robertsonian fusions
- 135 WEST, JOHN D.; KEIGHREN, MARGARET A. *and* FLOCKHART, JEAN H. A quantitative test for developmental neutrality of a transgenic lineage marker in mouse chimaeras
- 147 RANNALA, BRUCE *and* HARTIGAN, J. A. Estimating gene flow in island populations
- 159 NORDBOG, MAGNUS; CHARLESWORTH, BRIAN *and* CHARLESWORTH, DEBORAH. The effect of recombination on background selection
- 175 RITLAND, KERMIT. Estimators for pairwise relatedness and individual inbreeding coefficients
- 187 KOROL, A. B.; RONIN, Y. I.; TADMOR, Y.; BAR-ZUR, A.; KIRZHNER, V. M. *and* NEVO, E. Estimating variance effect of QTL: an important prospect to increase the resolution power of interval mapping
- 195 BOOK REVIEW
Genetics of Natural Populations. The Continuing Importance of Theodosius Dobzhansky. *Edited by Louis Levine*. BRIAN CHARLESWORTH
- 197 BOOKS RECEIVED

