



The Royal Society

Proceedings: Biological Sciences

Volume **257** Pages 105–214 Number **1349** 22 August 1994

Proceedings of the Royal Society of London **SERIES B**

PROCEEDINGS: BIOLOGICAL SCIENCES

Editor: Professor J. L. Harper, Cae Groes, Glan-y-Coed Park, Dwygyfylchi, Penmaenmawr, Gwynedd LL34 6TL (Tel. 0492 622362; Fax. 0492 623997)

Editorial Board

- Professor M. Ashburner**, Department of Genetics, Downing Street, Cambridge CB2 3EH (Tel. 0223 333969; Fax. 0223 333992)
Professor D. A. Brown, Department of Pharmacology, University College London, Gower Street, London WC1E 6BT (Tel. 071-380 7297; Fax. 071-380 7298)
Professor J. H. Edwards, Department of Biochemistry, South Parks Road, Oxford OX1 3QU (Tel. 0865 275317; Fax. 0865 275318)
Professor J. R. Guest, Department of Molecular Biology and Biotechnology, The University, P.O. Box 594, Firth Court, Western Bank, Sheffield S10 2UH (Tel. 0742 824406; Fax. 0742 728697)
Sir David Hopwood, John Innes Institute, Colney Lane, Norwich NR4 7UH (Tel. 0603 52571; Fax. 0603 56844)
Professor A. Iggo, Department of Preclinical Veterinary Sciences, University of Edinburgh, Summerhall, Edinburgh EH9 1QH (Tel. 031-667 1011, ext. 5299; Tlx 727442; Fax. 031-668 4341)
Professor M. Ito, Frontier Research Program, RIKEN, Wako-Shi, Saitama 351-01, Japan (Tel. 484 62 1111; Fax. 484 62 4697)
Professor L. N. Johnson, Laboratory of Molecular Biophysics, Rex Richards Building, South Parks Road, Oxford OX1 3QU (Tel. 0865 275365; Fax. 0865 510454)
Professor M. F. Land, School of Biological Sciences, University of Sussex, Lewes Road, Brighton BN1 9QG (Tel. 0273 678505; Fax. 0273 678433)
Dr P. A. Lawrence, MRC Laboratory of Molecular Biology, University Medical School, Hills Road, Cambridge CB2 2QH (Tel. 0223 402282; Tlx 81532; Fax. 0223 412142)
Professor C. J. Leaver, Department of Plant Sciences, South Parks Road, Oxford OX1 3RB (Tel. 0865 275143; Fax. 0865 275144)
Dr A. D. McLachlan, MRC Laboratory of Molecular Biology, Hills Road, Cambridge CB2 2QH (Tel. 0223 248011; Fax. 0223 213556)
Professor R. M. May, Department of Zoology, South Parks Road, Oxford OX1 3PS (Tel. 0865 271170; Fax. 0865 310447)
Professor R. H. Michell, Centre for Clinical Research in Immunology and Signalling, The Medical School, University of Birmingham, P.O. Box 363, Birmingham B15 2TT (Tel. 021-414 5413; Fax. 021-414 6840)
Dr M. S. Neuberger, MRC Laboratory of Molecular Biology, Hills Road, Cambridge CB2 2QH (Tel. 0223 402245; Fax. 0223 412178)
Dr I. Newton, Institute of Terrestrial Ecology, Monks Wood, Abbots Ripton, Huntingdon, Cambridgeshire PE17 2LJ (Tel. 048 73 381; Fax. 048 73 467)
Professor J. G. Nicholls, Biocenter, University of Basel, Kingelbergstrasse 70, Basel, CH-4056, Switzerland (Tel. 061 267-2230; Fax. 061 267-2208)
Professor G. A. Parker, Department of Environmental and Evolutionary Biology, The University, Liverpool L69 3BX (Tel. 051-794 5018; Fax. 051-794 5094)
Professor R. N. Perham, Department of Biochemistry, Tennis Court Road, Cambridge CB2 1QW (Tel. 0223 333663; Tlx 81240; Fax. 0223 333345)
Professor J. D. Pettigrew, Department of Physiology and Pharmacology, University of Queensland, Queensland 4072, Australia (Tel. 07 365-3842; Fax. 07 365-4522)
Professor J. M. Ritchie, Department of Pharmacology, Yale University Medical School, New Haven, Connecticut 06510, U.S.A. (Tel. 203 785-4567)
Sir David Weatherall, Institute of Molecular Medicine, John Radcliffe Hospital, Headington, Oxford OX3 9DU (Tel. 0865 222359; Fax. 0865 222501)
Professor G. Westheimer, Department of Molecular and Cell Biology, University of California, Berkeley, California 94720, U.S.A. (Tel. 510 642-4828; Fax. 510 643-6791)

Statistical Consultants: Dr J. F. Y. Brookfield; Professor D. J. Finney

NOTICE TO AUTHORS

Scope. *Proceedings* series B welcomes papers on any aspects of biological science. It publishes, rapidly, announcements of important results, normally not exceeding 4000 words (five printed pages). The Editor will also consider short reviews, but only if they contain original and interesting new ideas. Short additions to, or criticisms of, papers that have already been published (subject to their originality and interest, and to the rules of good manners) will also be acceptable. Preliminary reports ('letters') are not encouraged. The target publication time is three months from receipt (excluding any period that the manuscript is in the hands of the authors).

Submission. There is no page charge. Authors should send papers to the *Proceedings* B Editorial Office, The Royal Society, 6 Carlton House Terrace, London SW1Y 5AG. Up to six keywords should be supplied with the typescript. Four copies of the typescript and figures are required, and one set of originals of any figures should also be submitted. Papers should be prepared in accordance with the Instructions to Authors printed at the end of every issue of *Proceedings* B and also available from the Editorial Office.

Offprints. Authors will receive 50 free offprints.

COPYRIGHT: © 1994 The Royal Society

Except as otherwise permitted under the Copyright, Designs and Patents Act, 1988, this publication may only be reproduced, stored or transmitted, in any form or by any other means, with the prior permission in writing of the publisher, or, in the case of reprographic reproduction, in accordance with the terms of a licence issued by the Copyright Licensing Agency. In particular, the Society permits the making of a single photocopy of an article from this issue (under Sections 29 and 38 of this Act) for an individual for the purposes of research or private study.

SUBSCRIPTIONS

Proceedings of the Royal Society series B (ISSN 0962-8452) is published in monthly parts. The subscription price in 1994, including postage, is £220 in the U.K. and £235 (U.S. \$388) overseas. Air-speeded post is available for overseas subscribers at a small extra charge. Full details of subscription rates may be obtained on request from the Publications Sales and Marketing Department, The Royal Society, 6 Carlton House Terrace, London SW1Y 5AG. The Royal Society is Registered Charity no. 207043.