

Journal of Cell Science

The Company of Biologists Limited is a non-profit-making organization whose members are active professional biologists. The Company, which was founded in 1925, is the owner and publisher of this and *The Journal of Experimental Biology* and *Journal of Embryology and Experimental Morphology*.

Journal of Cell Science is devoted to the study of cell organization. Papers will be published dealing with the structure and function of plant and animal cells and their extracellular products, and with such topics as cell growth and division, cell movements and interactions, and cell genetics. Accounts of advances in the relevant techniques will also be published. Contributions concerned with morphogenesis at the cellular and sub-cellular level will be acceptable, as will studies of micro-organisms and viruses, in so far as they are relevant to an understanding of cell organization. Theoretical articles and occasional review articles will be published.

Subscriptions

Journal of Cell Science is published nine times a year. Each issue is a complete volume. The subscription price of volumes 80–86 plus Supplements 4 and 5 is £160.00 (USA and Canada, US \$410.00, Japan £180.00) post free. Individual volumes may be purchased at £21.00 (USA and Canada, US \$77.00) each, plus postage. Orders for 1986 may be sent to any bookseller or subscription agent, or to The Biochemical Society Book Depot, P.O. Box 32, Commerce Way, Colchester CO2 8HP, UK. Copies of the journal for subscribers in the USA and Canada are sent by air to New York for delivery with the minimum delay. Second class postage paid at New York, NY, and at additional mailing offices. Postmaster, send address corrections to: *Journal of Cell Science*, c/o Expeditors of the Printed Word Ltd, 515 Madison Avenue, New York, NY 10022, USA.

Back numbers of the *Journal of Cell Science* may be ordered through The Biochemical Society Book Depot. This journal is the successor to the *Quarterly Journal of Microscopical Science*, back numbers of which are obtainable from Messrs William Dawson & Sons.

Copyright and reproduction

1. Authors may make copies of their own papers in this journal without seeking permission from The Company of Biologists Limited, *provided that such copies are for free distribution only: they must not be sold.*
2. Authors may re-use their own illustrations in other publications appearing under their own name, without seeking permission.
3. Specific permission will *not* be required for photocopying copyright material in the following circumstances.
 - (a) For private study, provided the copying is done by the person requiring its use, or by an employee of the institution to which he/she belongs, without charge beyond the actual cost of copying.
 - (b) For the production of multiple copies of such material, to be used for bona fide educational purposes, provided this is done by a member of the staff of the university, school or other comparable institution, for distribution without profit to student members of that institution, provided the copy is made from the original journal.
4. ISI Tear Service, 3501 Market Street, Philadelphia, Pennsylvania 19104, USA, is authorized to supply single copies of separate articles for private use only.
5. For all other matters relating to the reproduction of copyright material written application must be made to Dr R. J. Skaer, Company Secretary, The Company of Biologists Limited, Department of Zoology, Downing Street, Cambridge CB2 3EJ, UK.

INFORMATION FOR CONTRIBUTORS

- 1 Manuscripts** should be sent to The Editors, *Journal of Cell Science*, Department of Zoology, Cambridge CB2 3EJ, England.
- 2 Manuscripts** must be typewritten, in *double spacing throughout (including tables, references and legends)*. Each table should be typed on a separate sheet. Legends to figures should be typed in a single series and placed at the end of the manuscript. Two complete copies of the manuscript should be submitted. Manuscripts must be fully corrected by the author, and a charge will be made for excessive alteration in proof.
- 3 Author's word-processor disks** can in some cases be used for typesetting. If available, please send a copy of the disk plus details of the word processor and program used with your final revised manuscript. Disks will be returned with proofs.
- 4 A short title** of not more than 40 characters, for use as page headings, should be supplied and at least **3 key words** for indexing papers.
- 5 Manuscripts** must contain a **Summary** of not more than 500 words, placed immediately after the title page. This must be intelligible without reference to the main text and contain no references.
- 6 The list of References** must be given in alphabetical order of authors' names. The titles of journals should be abbreviated in accordance with the *World List of Scientific Periodicals*, 4th edn (1963) and *Short Titles of Commonly Cited Scientific Journals*, Royal Society, London (1980). The following style is used:
GRAY, E. G. & WILLIS, R. A. (1968). Problems of electron stereoscopy of biological tissue. *J. Cell Sci.* **3**, 309–326.
MAZIA, D. (1961). Mitosis and physiology of cell division. In *The Cell*, vol. 3 (ed. J. Brachet & A. E. Mirsky), pp. 77–412. New York, London: Academic Press.
Citations in the text are given in the following form: Jones & Smith (1960) or (Jones & Smith, 1960). Where there are more than two authors citations should be in the form (Jones *et al.* 1960). Where more than one paper by the same author(s) has been published in the same year they are cited as Jones (1960a), Jones (1960b) etc.
- 7 Footnotes** should be avoided wherever possible.
- 8 SI units** should be used throughout in the preparation of manuscripts.
- 9 Text figures and photographs** should be numbered in a single series, in the order in which they are referred to in the text. Each individual drawing or photograph should be numbered separately (Fig. 1, Fig. 2 and so on).
- 10 Text figures** should preferably be not more than twice final size; very large drawings should be avoided. Original drawings are needed for reproduction as photographic copies cannot always be used. The maximum printed size of a drawing is 200 mm by 125 mm. Lettering will be inserted by the printers and should be indicated on a tracing-paper overlay or a duplicate copy.
- 11 Photographs** should preferably be submitted the same size as they are to appear. The maximum for a plate is 200 mm by 140 mm. Where several photographs make up a plate they should be mounted accurately on one sheet of cardboard and irregular shapes avoided wherever possible. Lettering on plates will be inserted by the printers and should be indicated either on a duplicate, marked set of prints or on a tracing-paper overlay bearing accurately marked outlines of the objects indicated.
- 12 Authors** should retain a complete set of labelled figures for checking against proofs. The originals will not be returned to authors with proofs.
- 13 Authors** will receive 200 **offprints** free of charge and may order additional copies when proofs are returned.
- 14 In order to give The Company of Biologists Limited authority to deal with matters of copyright**, authors will be required to assign to them the copyright of any article published in the journal.

Journal of **CELL**
SCIENCE

VOLUME 80, 1986

Editors:

A. V. GRIMSTONE
R. T. JOHNSON

HENRY HARRIS

Editorial Board:

W. B. AMOS
M. D. BENNETT
D. BRAY
G. M. W. COOK
V. DEFENDI
H. G. DICKINSON
G. A. DUNN
D. R. GARROD
G. GERISCH
I. R. GIBBONS
D. M. GLOVER
S. GORDON

B. E. S. GUNNING
R. A. LASKEY
H. C. MACGREGOR
C. J. MARSHALL
J. C. METCALFE
R. B. NICKLAS
J. D. PITTS
N. J. SEVERS
L. SIMINOVITCH
D. C. SMITH
J. TAYLOR-PAPADIMITRIOU

Published by

THE COMPANY OF BIOLOGISTS LIMITED
CAMBRIDGE

Typeset, Printed and Published by
The Company of Biologists Limited
Department of Zoology, University of Cambridge, Downing Street,
Cambridge CB2 3EJ

© The Company of Biologists Limited 1986

CONTENTS VOLUME 80 FEBRUARY 1986

- page 1 BERGER, S. and SCHWEIGER, H.-G. Perinuclear dense bodies: characterization as DNA-containing structures using enzyme-linked gold granules
- 13 KACHAR, B., CHRISTAKIS, N. A., REESE, T. S. and LANE, N. J. The intramembrane structure of septate junctions based on direct freezing
- 29 GALATIS, B., APOSTOLAKOS, P. and PALAFOUTAS, D. Studies on the formation of 'floating' guard cell mother cells in *Anemia*
- 57 GLICK, R. E., TRIEMER, R. E. and ZILINSKAS, B. A. Freeze-fracture analysis of thylakoid membranes and photosystem I and II enriched fractions from *Phormidium laminosum*
- 75 SUZAKI, T. and WILLIAMSON, R. E. Reactivation of euglenoid movement and flagellar beating in detergent-extracted cells of *Astasia longa*: different mechanisms of force generation are involved
- 91 EDWARDS, P. A. W., BROOKS, I. M., BUNNAGE, H. J., FOSTER, A. V., ELLISON, M. L. and O'HARE, M. J. Clonal analysis of expression of epithelial antigens in cultures of normal human breast
- 103 VERHEIJEN, R., KUIJPERS, H., VOOJIS, P., VAN VENROOIJ, W. and RAMAEKERS, F. Protein composition of nuclear matrix preparations from HeLa cells: an immunochemical approach
- 123 DOLAN, M. T., REID, C. G. and VOORHEIS, H. P. Calcium ions initiate the selective depolymerization of the pellicular microtubules in bloodstream forms of *Trypanosoma brucei*
- 141 ELLEMAN, C. J. and DICKINSON, H. G. Pollen-stigma interactions in *Brassica*. IV. Structural reorganization in the pollen grains during hydration
- 159 GUTZEIT, H. O. The role of microfilaments in cytoplasmic streaming in *Drosophila* follicles
- 171 FERRERO, M. L. and DE LA TORRE, C. Cell proliferation in *Allium cepa* L. meristems under 8-hydroxyquinoline, a chelating agent that affects DNA and RNA polymerases
- 181 HYLDAHL, L., ASPINALL, R. and WATT, F. M. Immunolocalization of keratan sulphate in the human embryonic cornea and other human foetal organs
- 193 SORSA, V. Distribution of chromomeres as a basis of chromosomal coiling
- 207 KIRK, D. L., BIRCHEM, R. and KING, N. The extracellular matrix of *Volvox*: a comparative study and proposed system of nomenclature
- 233 CROSSLEY, R., MARSHALL, J., CLARK, J. T. and HOLBERTON, D. V. Immunocytochemical differentiation of microtubules in the cytoskeleton of *Giardia lamblia* using monoclonal antibodies to α -tubulin and polyclonal antibodies to associated low molecular weight proteins
- 253 TANAKA, K. and KANBE, T. Mitosis in the fission yeast *Schizosaccharomyces pombe* as revealed by freeze-substitution electron microscopy
- 269 EL-BATTARI, A., MULLER, J. M., FANTINI, J., BELLOT, F., TIRARD, A., DUCRET, F. and MARVALDI, J. Monensin and tunicamycin-induced inhibition of HT29 cell spreading and growth
- 281 BACKMAN, L. Shape control in the human red cell

