

# The Journal of **Experimental Biology**

## V-ATPases

VOLUME 172

1992

EDITED BY W. R. HARVEY AND N. NELSON

Based on an international symposium arranged by  
The Company of Biologists Limited  
and held in Telluride, Colorado, on June 8–12 1992

### EDITORIAL BOARD

---

R. McN. ALEXANDER (LEEDS)  
M. BURROWS (CAMBRIDGE)  
P. J. BUTLER (BIRMINGHAM)  
V. E. DIONNE (SAN DIEGO)  
D. H. EVANS (FLORIDA)  
P. D. EVANS (CAMBRIDGE)  
R. K. JOSEPHSON (IRVINE)  
J. M. GOSLINE (BRITISH COLUMBIA)  
M. F. LAND (SUSSEX)  
G. V. LAUDER (IRVINE)

C. P. MANGUM (WILLIAMSBURG)  
B. R. McMAHON (CALGARY)  
J. G. NICHOLLS (BASEL)  
U. M. NORBERG (GÖTEBORG)  
K. SCHILDBERGER (MAX-PLANCK  
INSTITUT, SEEWIESEN)  
G. N. SOMERO (OREGON)  
K. TAKAHASHI (TOKYO)  
P. W. WEBB (MICHIGAN)

---

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

© The Company of Biologists Limited 1992

**This Publication  
is available in Microform**

**University Microfilms International**

300 North Zeeb Road, Dept P R., Ann Arbor, MI. 48106

## ACKNOWLEDGEMENTS

This symposium was sponsored by the Company of Biologists Ltd, with major support from Hoffman-La Roche Inc., Rohm and Haas Co., Ciba-Geigy Ltd, Pfizer Inc. and Miles Inc./Bayer. Generous support was also provided by Monsanto Co., Merck & Co., Inc., Rahway, NJ Research Laboratories, SmithKline Beecham Pharmaceuticals and Hoechst-Roussel Agric-Vet Co. We thank all of the participants for presentations at the meeting, for writing chapters and for editorial assistance. We thank Tom Stevens, Lincoln Taiz, Stephen Gluck, Clifford Slayman, Michael Wolfersberger, Wolfgang Zeiske and Richard McCarty for chairing sessions and editing corresponding manuscripts. We especially thank Clifford Slayman for extensive scientific advice and editorial assistance. We thank Margaret Clements for organizing the travel and accommodation as well as coordinating the handling of manuscripts. We thank Sandra Ray for editing the manuscripts and assembling them for publication. We thank Billy Gaddis for projecting slides and finally we thank Rawlie Busch and his staff as well as the Geronas for the splendid food and accommodation at the Cimarron Lodge.

We are indebted to the American Physiological Society, the American Society of Plant Physiologists, the National Academy of Sciences USA, Springer-Verlag and Taylor & Francis Ltd for granting permission to reproduce text illustrations.