# CONTENTS

NO. I FEBRUARY 1992	
w. кüнlbrandt. Two-dimensional crystallization of membrane proteins	I
B. NORDÉN, M. KUBISTA AND T. KURUCSEV. Linear dichroism spectroscopy of nucleic acids	51
NO. 2 MAY 1992	
B. H. ZIMM AND S. D. LEVENE. Problems and prospects in the theory of gel electrophoresis of DNA	171
o. SHORTLE. Mutational studies of protein structures and their stabilities	205
Travel assistance to attend 11th International Biophysics Congress, in Budapest, August, 1993	251
NO. 3 AUGUST 1992	
J. E. WALKER. The NADH: ubiquinone oxidoreductase (complex I) of respiratory chains	253
M. BILLETER. Comparison of protein structures determined by NMR in solution and by X-ray diffraction in single crystals	325
NO. 4 NOVEMBER 1992	
An Appreciation of Peter Läuger	379
H. BETZ. Structure and function of inhibitory glycine receptors	381
AND D. BERTRAND. The functional architecture of the acetylcholine nicotinic receptor explored by affinity labelling and site-directed	
mutagenesis	395
H. VOGEL. Structure and dynamics of polypeptides and proteins in lipid membranes	433
S. B. HLADKY. Kinetic analysis of lipid soluble ions and carriers	459
M. B. PARTENSKII AND P. C. JORDAN. Theoretical perspectives on	137
ion-channel electrostatics continuum and microscopic approaches	177

# QUARTERLY REVIEWS OF

# Biophysics

## **VOLUME 26 1993**

### EDITORS

C.-I. Brändén (Sweden)

R. Henderson (United Kingdom)

C. Miller (USA)

R. Rigler (Sweden)

J. C. Wang (USA)

### COUNCIL OF IUPAB

H. J. C. BERENDSEN (The Netherlands)

President

M. BRUNORI (Italy) Honorary Vice President

C. R. CANTOR (USA)

M. CORTIJO (Spain)

J. GARNIER (France)

P. J. GARRAHAN (Argentina)

N. GO (Japan) Vice President

G. GOVIL (India)

J. N. JANSONIUS (Switzerland)

D.-C. LIANG (China)

A. C. T. NORTH (UK) Secretary General

F. G. PARAK (Germany)

D. A. D. PARRY (New Zealand) Vice President

I. PECHT (Israel)

R. RIGLER (Sweden)

A. B. RUBIN (Russia)

I. C. P. SMITH (Canada)

PUBLISHED FOR THE INTERNATIONAL UNION FOR PURE AND APPLIED BIOPHYSICS

**CAMBRIDGE UNIVERSITY PRESS 1993** 

Published by the Press Syndicate of the University of Cambridge The Pitt Building, Trumpington Street, Cambridge CB2 1RP 40th West 20th Street, New York, NY 10011-4211, USA 10 Stamford Road, Oakleigh, Melbourne 3166, Australia

© Cambridge University Press 1993

Printed in Great Britain by the University Press, Cambridge

## INSTRUCTIONS TO AUTHORS

- 1. Quarterly Reviews of Biophysics is the official journal of the International Union for Pure and Applied Biophysics. As such, its primary aim is to provide a forum for general and specialized communication between biophysicists working in different areas. This will normally be achieved by inviting authors who have made significant contributions to give a critical and readable account of recent progress in their special fields. Shorter and even controversial articles discussing topics of particular current interest will also be published. Suggestions for reviews can be made to the editors.
  - 2. The style of presentation must be concise, with only key references.
- 3. Three copies of manuscripts are required. They should be typed in double spacing throughout, including the list of references, with a margin of 4 cm all round. The position of tables and illustrations should be indicated in the text. Tables and legends for illustrations should be typed on separate pages. A table of contents should be provided for printing at the head of the article. Chapter and section headings and the table of contents should conform to the style in any issue from volume 19 onwards.
- 4. In the text, the references should be to authors and year. When a paper cited has three or more authors the style Smith et al. (1973) should be used on all occasions. At the end of the paper, references should be listed alphabetically, with the full title of each paper, and the first and last pages. Abbreviations of journal titles should follow the World List of Scientific Periodicals. Authors should follow the example below for layout and punctuation:
- Bernal, J. D. (1967). Origins of Life. London: Weidenfeld and Nicolson.

  Eigen, M. (1968). New looks and outlooks on physical enzymology. Q. Rev. Biophys. 1, 3-33.

  Swenberg, C. E. & Geacintov, N. E. (1973). Exciton interactions in organic solids. In Organic Molecular Photophysics, vol. 1 (ed. J. B. Birks), pp. 489-564. London: Wiley.
- 5. Drawings and photographs should be of the highest possible quality. The maximum size should be A4. Explanations should as far as possible be placed in the legends. Lettering for drawings and photographs should either be on a duplicate print or on an accurately registered overlay.
- 6. The author will receive only one set of page proofs for correction. Fifty reprints of each review will be provided free of charge. In the case of multiple authorship these proofs and offprints will be sent to the first-named author only. One hundred additional copies may be purchased if ordered at the time proofs are returned.

### COPYING

This journal is registered with the Copyright Clearance Center, 27 Congress Street, Salem, Mass. 01970. Organizations in the USA who are also registered with C.C.C. may therefore copy material (beyond the limits permitted by sections 107 and 108 of US © law) subject to payment to C.C.C. of the per-copy fee of \$05.00. This consent does not extend to multiple copying for promotional or commercial purposes. Code 0033-5835/92 \$5.00+.00.

ISI Tear Sheet Service, 3501 Market Street, Philadelphia, Pennsylvania 19104, USA, is authorized to supply single copies of separate articles for private use only.

For all other use, permission must be sought from Cambridge or the American Branch of Cambridge University Press.

Quarterly Review of Biophysics is covered by relevant abstracting and indexing services including Biological Abstracts, Chemical Abstracts, Current Awareness in Biological Science, Current Contents, Excerpta Medica and Index Medicus.

# Biophysics

VOL. 25 NO. 4 NOV. 1992

## CONTENTS

An Appreciation of Peter Läuger	379
The following six reviews have been especially contribute in memory of Peter Läuger	
H. BETZ	
Structure and function of inhibitory glycine receptors	381
JP. CHANGEUX, JI. GALZI, A. DEVILLERS-THIÉRY AND D. BERTRAND	
The functional architecture of the acetylcholine nicotinic receptor explored by affinity labelling and site-directed	
mutagenesis	395
H. VOGEL Structure and dynamics of polypeptides and proteins in lipid membranes	422
•	433
S. B. HLADKY Kinetic analysis of lipid soluble ions and carriers	459
M. B. PARTENSKII AND P. C. JORDAN Theoretical perspectives on ion-channel electrostatics	
continuum and microscopic approaches	477

# FORTHCOMING REVIEW

E. BAMBERG, H.-J. BUTT, A. EISENRAUCH AND K. FENDLER Charge transport of ion pumps on lipid bilayer membranes

© Cambridge University Press 1992

### CAMBRIDGE UNIVERSITY PRESS

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

Printed in Great Britain by the University Press, Cambridge