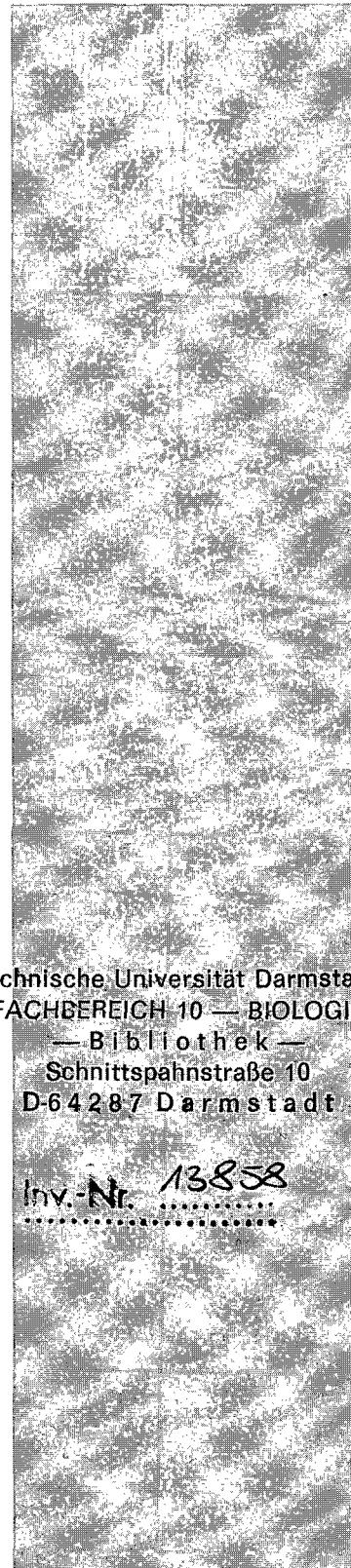


H2.43

Temperature Adaptation of Biological Membranes

Proceedings of the meeting held in Cambridge under the auspices of the Society for Experimental Biology in conjunction with its US/Canadian counterparts.



Technische Universität Darmstadt
FACHBEREICH 10 — BIOLOGIE
— BIBLIOTHEK —
Schnittspahnstraße 10
D-64287 Darmstadt

Inv.-Nr. 13858

Editor

A. R. Cossins



vii	Preface
ix	Contributors
xiii	Abbreviations

Membrane biophysics

- | | | |
|-----|-----------------------------------------------------------------------------------------------------------|----|
| 1 | Temperature dependence of molecular dynamics and calcium-ATPase activity in sarcoplasmic reticulum | 1 |
| | D. D. Thomas and B. S. Karon | |
| 13 | Phospholipid requirements of the Ca^{2+}-ATPase | 2 |
| | A. G. Lee, J. M. East, I. M. H. Henderson, A. P. Starling and J. Q. M. Warmerdam | |
| 31 | Techniques for measuring lipid phase state and fluidity in biological membranes | 3 |
| | R. N. McElhaney | |
| 49 | Compatible solutes modulate membrane lipid phase behaviour | 4 |
| | N. M. Tsvetkova and P. J. Quinn | |
| | Biophysical studies of membrane adaptation | |
| 63 | Homeoviscous adaptation of biological membranes and its functional significance | 5 |
| | A. R. Cossins | |
| 77 | Lipid thermotropic phase behaviour in mammalian hibernation | 6 |
| | D. J. Pehowich | |
| | Biochemical studies of membrane adaptation | |
| 91 | Thermal adaptation in fish membranes: temporal resolution of adaptive mechanisms | 7 |
| | E. E. Williams and J. R. Hazel | |
| 107 | Changes in plants lipids during temperature adaptation | 8 |
| | J. L. Harwood, A. L. Jones, H. J. Perry, A. J. Rutter, K. L. Smith and M. Williams | |
| 119 | Temperature adaptation and the membrane lipids of <i>Acanthamoeba castellanii</i> | 9 |
| | A. L. Jones, D. Lloyd and J. L. Harwood | |
| 129 | Acyl-CoA desaturases and the adaptive regulation of membrane lipid composition | 10 |
| | A. Macartney, B. Maresca and A. R. Cossins | |

	Genetic and Molecular Approaches to Membrane Adaptation	
141	<i>Arabidopsis</i> mutants and genetic approaches to the control of lipid composition	11
	J. Browse, M. Miquel, M. McConn and J. Wu	
155	Genetic and temperature-induced modulation of cyanobacterial membrane lipids	12
	N. Murata	
163	Genetic engineering of phosphatidylglycerol and chilling sensitivity in higher plants	13
	N. Murata	
	Functional adaptations of biological membranes	
169	Temperature adaptation of lymphocyte function in fish	14
	J. E. Bly and L. W. Clem	
185	Membranes as the critical targets in cellular heat injury and resistance adaptation	15
	K. Bowler and R. Manning	
205	The adaptation of excitable membranes to temperature and pressure: conduction velocity	16
	A. G. Macdonald	
223	Index	