

Book Reviews

Lipid-Protein Interactions, Vols. 1 and 2

Edited by P.C. Jost and O. Hayes Griffith

John Wiley and Sons; New York, 1982

Vol. 1: 338 pages. £58.50; Vol. 2: 307 pages. £54.50

These two books, Vol. 1 and Vol. 2, are concerned with providing a series of review articles centred around the topic of Lipid-Protein Interactions. The first volume deals with water soluble lipid-protein systems whilst the second focuses on biomembrane systems.

The chapters in Vol. 1 deal with topics which include 'Lipid-protein interactions in a bacteriochlorophyll-containing protein' by B.W. Mathews, 'Serum albumen' by Brown and Shockley, 'Pancreatic phospholipase A₂' by Volwerk and de Haas, 'Phospholipid transfer proteins' by K.W.A. Wirtz, 'Lipovitellin and the yolk lipoprotein complex' by Banaszak, Ross and Wrenn, and 'Lipid-protein interactions in plasma lipoproteins' by Scanu, Edelstein and Shen.

Each of the chapters is well written and interesting in its right as a topic of research. The chapter on the bacteriochlorophyll protein is particularly interesting as it is the only high resolution X-ray diffraction structure which has been determined as a complex of lipids with protein. In this case, the lipids are completely enclosed within an envelope of protein and the lipids occupy well defined but quite irregular conformations. Matthews suggests that any type of secondary structure including helices, sheets and irregular protein structure may participate in lipid-protein interactions.

There has been considerable confusion and discussion relating to lipid-protein interactions within biomembranes and it is therefore interesting to examine Vol. 2.

In Vol. 2 there are a series of chapters ranging from 'Structural organisation of myelin' by J.M. Boggs, M.A. Moscarello and D. Papahadjopoulos, 'Spin-labelling and lipid-protein interactions in membranes' by D. Marsh and A. Watts, 'Nuclear magnetic resonance and lipid-protein interactions' by J. Seelig, A. Seelig and L. Tamm, 'Photochemical cross-linking in studies of lipid-protein interactions' by R.J. Robson, R. Radhakrishnan, A.H. Ross, Y. Takagaki and H.G. Khorana, 'Interactions between proteins and amphiphiles' by J.A. Reynolds, 'Equilibrium constants and number of binding sites for lipid-protein interactions in membranes' by O.H. Griffith, J.R. Brotherus and P.C. Jost, and finally 'Thermotropic phase transitions of pure lipids in model membranes and their modification by membrane proteins' by J.R. Silvius.

Each of these chapters is complete and well written. It is therefore interesting to compare and contrast some of the views on protein-lipid interactions in model and natural biomembranes.

The earlier view, based on ESR experiments, and expressed by a number of biochemists, that every intrinsic membrane protein has a rigid shell of tightly bound lipid, sometimes called the lipid annulus, is now modified in the light of more recent deuterium nmr experiments. The difference between the ESR

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