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BOOK REVIEW

CARAFOLI, E., SEMENZA, G. (ed.): *MEMBRANE BIOCHEMISTRY. A Laboratory Manual on Transport and Bioenergetics.* — Springer Verlag, Berlin—Heidelberg—New York 1979. 175 pp. DM 27,—; US \$ 14.90.

This book is a laboratory manual of some modern methods on membrane transport and bioenergetics. Successfully tested experimental techniques which can be applied to a wide range of projects are described clearly in seventeen chapters. The first five chapters illustrate some possibilities of characterizing a transport system by means of transport measurements. The experimental methods to differentiate between transport, binding and diffusion are described in the chapter dealing with nonelectrolyte transport in isolated brush border membrane vesicles. The further study describes methods of investigation of the transport of various sugars in bacteria. The movement of Na^+ and K^+ in human red blood cells is studied by the methods of emission flame photometry. Two chapters are devoted to the calcium transport in sarcoplasmic reticulum vesicles and erythrocytes. For measurement of Ca transport the following methods are indicated: the calcium-sensitive electrode, the millipore filtration technique and the spectrophotometric assay of the rate of Ca^{++} uptake using Ca^{++} indicator dyes.

The bioenergetic part of the book contains further twelve chapters, six of which are devoted to animal mitochondria. The methods of preparation and assay of animal mitochondria and measurement of cytochrome kinetics are presented in detail. Measurements of proton translocation through a mitochondrial membrane use both a sensitive pH meter connected to a strip-chart recorder and spectrophotometer with a pH indicator. The radiobiologic method using labelled 3H_2O , ^{86}Rb , ^{14}C -sugars for determination of the membrane potential is also described. The photosynthetic methods are represented by measurements of activities photosystem I, photosystem II and photosystems I + II by means of oxygen electrode in the suspension of spinach chloroplasts. Photophosphorylation is studied on *Rhodospirillum rubrum* by labelled ^{32}P and on *Halobacterium halobium* by luciferine-luciferase. The last two chapters deal with the characterization of ionophores using artificial lipid membranes.

We can conclude that the book is of great help for the use of new methods and gives us a clear survey of experiments on membrane transport and membrane bioenergetics. The advantage of the methods shown in this book is that they may be applied with the use of easily available measurement devices. Unfortunately, the experiments on plant mitochondria are not included in this book.

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