Sugar Transport and Metabolism in Gram-positive Bacteria: edited by JONATHAN REIZER AND ALAN PETERKOFSKY, Ellis Horwood, Chichester, 1987, 431 pages + Subject Index, £69.50.

Sugar Transport and Metabolism in Gram-positive Bacteria is a multi-authored volume in the Ellis Harwood series on Biochemistry and Biotechnology. Although there are numerous textbooks on transport in Gram-negative bacteria, there is a paucity of reference books on carbohydrate transport and metabolism in Gram-positive organisms. This is, therefore, a welcome volume that surveys a broad range of topics.

The book begins with an excellent discussion, by John Thompson, of the transport of glucose, galactose, sucrose, and maltose in lactic acid bacteria, and the regulation of the transport:glycolysis cycle. The discussion of transport in lactic acid bacteria is continued in Chapter 6 with a description of mechanisms for ribitol and xylitol transport and xylitol sensitivity. The evolution, kinetics, and characterization of the components of the phosphoenolpyruvate-dependent:phosphotransferase system (PTS) are presented in Chapters 9 through 11. In Chapter 9, a unified theory for the origin of PTS from a primordial, fructose-specific PTS is proposed, based on a comparison of the structure and function of enzyme components. The primary structure and physical properties of the PTS proteins are compared in Chapter 10, and a description of the kinetic properties of the components is given in Chapter 11.

This volume contains several chapters on the regulation of sugar transport and metabolism. In Chapter 15, Reizer and Peterkofsky discuss the regulation of the PTS system by membrane potential, non-PTS sugars, and the acetate kinase mechanism first described by Fox and Roseman. The regulation of glycolysis in streptococci, and the effects of environmental changes, are described in Chapters 3 and 4. Effects on the transport of sugars, glycolysis, and polysaccharide metabolism by such factors as pH and carbon source, typical of dental plaque, are presented in Chapter 4. Catabolite repression in *E. coli* and *Bacillus* is described in Chapter 16. There is also information in this book on such non-sugar transport as the phosphate-exchange mechanism described in Chapter 5, or the regulation of cytoplasmic pH and the role of ATPase, in Chapter 12. An interesting presentation of the primary and secondary transport in membrane models and in bacteria is given in Chapter 13. The volume would not be complete without some mention of the genetics of carbohydrate metabolism or the industrial uses of Gram-positive bacteria, and Donald LeBlanc describes work in the genetics of lactose and sucrose metabolism in streptococci. The uses of Gram-positive bacteria in industry are discussed in the final chapter. Some of the uses presented are in the industrial production of enzymes, bulk chemicals, and biological active compounds, and as host for the production of recombinant proteins.

Although the organizational logic of the chapters in this volume escapes this reader, the book is a useful collection of well written and often well illustrated articles. The book should be part of a reference library for students and research scientists. It is, however, too expensive to be recommended for a personal library, except in special cases.

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