

Preface

This is a different kind of a biochemistry textbook. The book is centered on human biochemistry and does not dwell on comparative biochemistry, except in a few cases to enhance meaning. This text is directed to medical students, graduate students, and undergraduate students, particularly those majoring in biochemistry or biology, and those who are pre-medical students. The content is fairly concentrated, but there are many figures, making this a satisfying experience for visual learners. I have always felt that a picture to support the word is the best way to learn. Since I love to set ideas down in pictures, I have slanted the entire book in this direction. In addition, there are several pictures of structures, especially of proteins. Because so much information is now available on protein structure, students should become used to looking at three-dimensional structures that may resemble the actual protein in solution. Sometimes, little will be conveyed through the structure about its function; other times, especially when there is another macromolecule or small molecule with which the protein is reacting, the picture will impart a great feeling for how the protein is working, surpassing the verbal explanation. Also, there are no distinctions made between biochemistry, molecular biology, and cell biology; in my view, they are related seamlessly.

The impetus for creating this book came from many years of experience in planning for and teaching biochemistry to medical students. The majority of medical students, in my opinion, found biochemistry to be a grueling experience because they had a difficult time understanding how biochemistry relates to medicine or to disease. Part of this perception came from the way in which biochemistry is taught. Biochemists usually know rather little about disease, and clinicians know little about biochemistry. I have tried to make the relationship of biochemistry to medicine evident by introducing each biochemical topic with a study of a disease that represents the biochemical principles to be conveyed. For example, the subject of carbohydrate biochemistry is introduced by a discussion of diabetes, proteins by a discussion of prion disease, microbial biochemistry, by a discussion of HIV, and so on, with an introductory discussion of a relevant disease or clinical relationship in each chapter. This should make the study of biochemistry more meaningful for the medical student and not something to be avoided by the undergraduate or graduate student. After all, in many cases disease stems from abnormal biochemistry, and normalizing it may be the way to treat the disease. One needs to understand aberrant

biochemistry and certainly normal biochemistry because this is the way in which cells in the body function.

Figures and tables are, for the most part, taken from the literature. Many citations to the sources for the data shown appear and these references will be useful to those readers who wish to pursue the literature beyond what is presented. For this reason, I have not appended a list of published papers at the end of each chapter, as is the usual custom, but rather I mention one or more specialized books for further reading.

Ten years ago, it might have taken me twice the time it actually took to prepare this book. Now with powerful search engines and availability of the literature on the Internet, writing this book was a pleasant experience. In particular, I need to give credit to the search engines and people who have helped me. Google search engine and to a lesser extent Google Scholar were very powerful tools. PubMed was especially helpful. Academic Press/Elsevier, through the courtesy of Jeremy Hayhurst, provided Science Direct, which allowed my entry into the current literature in many journals. Two university libraries were made available to me online: Dr. Thomas Nasca made it possible for me to utilize the Thomas Jefferson University library of my former institution. Dr. Elizabeth Neufeld, Chair of the Department of Biological Chemistry, David Geffen School of Medicine at UCLA, invited me to be a Visiting Scholar and at the same time made the library of the institution available to me. Because of this kind of assistance, I was able to generate most of the information I needed directly from my computer.

The Publisher, Academic Press/Elsevier, is one I have been associated with for many years. The Publisher, in the person of Jeremy Hayhurst, has been helpful and very supportive during the process, and they seemed to agree with my idea for this text from the beginning. In the later stages of the completion of the book and its publication, Tari Broderick and Renske Van Dijk of Academic Press facilitated the final steps and production.

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