

Preface to the Second Edition

The principal concept of the first edition: general aspects of enzymes and presentation of special enzyme assays and related tests such as protein determination and enzyme immobilization, as well as instrumental aspects, remain conserved in the second edition. Additional enzyme assays and tests, for example, for the determination of glycoproteins and inorganic phosphate, have been included, considering the principles of broad interest and diversity of methods. Features of the enzymes, which are of importance for the assay conditions, such as cofactor requirement, molecular mass, state of aggregation, kinetic constants, and pH optimum, are indicated, but it is not intended to present all known data. Actually, an overwhelming quantity of data accumulated within the last years, owing to the violent progress in gene technology, and features of the same enzyme species can differ extremely, depending on the organisms from where it originates. For practical treatment of an enzyme assay, such a variety of data is more disturbing than helpful; therefore, only the features of one or few representative enzyme species, preferentially from human or mammalian origin, are mentioned. Particular attention has been drawn to frequent pitfalls and error detection for the methods described.

Enzymes applied for molecular biology and gene technology, such as restriction enzymes and polymerases, are not taken into consideration. They are extensively described in text books and manuals of the respective field, but the general rules for handling and for the assay conditions are also valid for these enzymes. This holds also for RNA enzymes (ribozymes), antibody enzymes (antizymes), and artificial enzymes derived, for example, from cyclodextrins or crown ethers, and for enzymes modified by site-specific mutations.

The layout has been improved, for example, by introduction of colors; the structure of text is clearer; and the essential points of the sections are summarized in separated boxes. A companion web site (www.wiley-vch.de/home/enzymology/) provides animations for all figures together with supplementary material, for deeper understanding of the partially abstract matter.

Especially emphasized are the valuable contributions of Klaus Möschel and Rainer Figura to the chapter of immobilized enzymes.

Tübingen, January 2011

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Note to the Reader

Animations should assist the comprehension of the text. They are principally self-explaining, but knowledge of the corresponding book chapter and the respective figure legend is presupposed. Most animations are subdivided into sequential steps, which are initiated by the cursor button ($\rightarrow$) or a mouse click. A green arrow at the bottom of each figure gives the signal for pressing, during the animation run it disappears. 'X' indicates the end of the animation before passing to the next figure.