

Book Reviews

Enzymes in Synthetic Organic Chemistry. Tetrahedron Organic Chemistry Series. Volume 12. By Chi-Huey Wong and George M. Whitesides. Pergamon, Oxford, England. 1994. xvii + 370 pp. 17 × 25 cm. ISBN 0-08-035941-8. \$38.00 (pbk).

This text is a tour de force by two world-renowned enzyme chemists and is a must addition to the library of any chemist who requires organic synthesis in his work. Following a chapter on the general aspects of enzymes in synthetic organic chemistry, including a discussion of enzyme kinetics and factors that affect enzyme activity, there are five chapters that review and discuss numerous synthetic transformations which are effected by enzymes. Chapter 2 describes the most commonly used class of enzymes, hydrolytic enzymes, such as amidases, proteases, esterases, lipases, nitrilases, phosphatases, and epoxide hydrolases. Chapter 3 is concerned with enzyme-catalyzed oxidoreductions. Carbon-carbon bond forming reactions are covered in chapter 4. The topic of chapter 5 is the synthesis of glycosidic bonds, and chapter 6 is concerned with addition, elimination, and other group transfer reactions, such as phosphoryl, methyl, sulfo, and amino transfer reactions. Each chapter is rich with examples and schemes of numerous enzyme-catalyzed organic

transformations (including corresponding recent references), with emphasis on asymmetric reactions and generation of chiral centers.

This book is not only for the experienced enzymologist, but it is written especially for the organic chemist who has ignored enzymes as synthetic tools for lack of knowledge of their use and capabilities. Wong and Whitesides make the use of enzymes for the novice understandable and alleviates concerns (apprehensions) about them. They make it very clear why the use of enzymes in organic synthesis is essential for the modern synthetic chemist, and describe when the use of enzymes is advantageous, and when it is not.

Enzymes in Synthetic Organic Chemistry will be found to be as useful as is Fieser & Fieser's series on organic reagents. If all organic chemists read it, the consciousness of the field of organic synthesis in general will be raised, which will lead to the discovery of new, more efficient syntheses.

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