

Modern Aldol Reactions, R. Mahrwald (Ed.), Wiley-VCH: Weinheim, 2004, two-volume set, hardcover, 679 pp, £220.00/€330.00, ISBN 3-527-30714-1

This two-volume hardcover handbook contains an excellent selection of review articles on various aspects of the aldol reaction. Many renowned specialists in the field of asymmetric synthesis have contributed to this leading reference source. The enormous amount of data presented reflects the maturing process of the aldol reaction to one of the most important stereoselective carbon-carbon-connecting transformations.

Volume 1 comprises seven chapters with 335 pages. Three chapters are devoted to the aldol chemistry of metal (Na, Li and Mg; Ti; B and Si) enolates. Aldol reactions that are catalyzed by amines ('aminocatalysis') as well as enzymes and antibodies are covered by one chapter each. To emphasize the importance of the asymmetric aldol methodology in natural product synthesis, the last chapter of Volume 1 covers the synthetic race toward the ephedrilones. Volume 2 comprises eight chapters with 338 pages. The first five chapters of Volume 2 are mainly concerned with aldol reactions that can be catalyzed or promoted by external Lewis acids based on Ag, Au, Pd; B, Si; Cu; Sn and Zr. From the first five chapters, the incredible diversity of the Mukaiyama aldol reaction in the presence of external chiral inductors is evident. Chapter 6 is devoted to direct catalytic asymmetric aldol reactions in the presence of metal catalysts that circumvent the formation of Mukaiyama-type precursors. In its 97 pages, Chapter 7 outlines the development of enantioselective aldol reac-

tions in the presence of Lewis bases as catalysts. Finally, Chapter 8 of Volume 2 briefly summarizes the Aldol-Tishchenko reaction. All chapters of Volume 1 and 2 recapitulate the state of the art of the corresponding method and countless applications in target-oriented synthesis are provided.

Whoever intends to invest in this handbook should be aware that it is not a textbook. It is a collection of review articles on the same topic and, consequently, will be mainly used as a reference source. References cited cover the literature up to 2003 or 2004. Drawbacks may be the inconsistent appearance of the graphics and the absence of a general list of abbreviations. The book provides a myriad of examples for stereoselective aldol reactions and, therefore, is a leading reference source for anyone who requires a potential solution for a synthetic problem. The chapters are classified according to the participating metals or reaction conditions but the index of the book is woefully inadequate. Consequently, finding a certain product structure (e.g. for 'anti-aldol', the index lists only two pages within the same chapter), chiral auxiliary (the 'Evans auxiliary' is not in the index) or reaction mode (based on the index, 'vinylogous aldol additions' are unknown) may be a very time consuming and discouraging process. Overall, this book is indispensable for anyone in the business of stereoselective synthesis; however, it is far too expensive!

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