

Book Review of Chirality from Dynamic Kinetic Resolution

Chirality from Dynamic Kinetic Resolution. By Hélène Pellissier (CNRS and Paul Cézanne University, Aix-Marseille, France). Royal Society of Chemistry: Cambridge. 2011. xviii + 300 pp. £99.99. ISBN 978-1-84973-197-3.

This book documents a wide variety of dynamic kinetic resolution (DKR) studies performed over the past two decades. DKR systems involving not only more commonly known enzymatic, organic, and inorganic catalysis, but also those using chiral auxiliaries and other esoteric cases, such as configurationally labile anions, are described. In addition there is good coverage of more recent and novel systems, such as atroposelective reactions and tandem enzyme/transition-metal catalytic systems. There is a wide diversity of reactions featured in each chapter and section. Unique examples include the use of DKR systems for ring-opening polymerization of chiral polymers and for synthesis of chiral organometallic compounds.

Throughout the text, the individual studies are summarized in a paragraph or two, accompanied by a reaction scheme. This lends the text a readable structure with a reference-book level of utility. The majority of references are both recent and pertinent, although some more obscure areas have not been documented in several years; e.g., for configurationally labile anions there are no citations newer than 13 years ago.

The layout and organization of the book have some minor issues: for example, many reaction schemes have two lines and excessive white space on the sides, whereas one-line layout would have made the schemes more readable. Many schemes also tend to lag behind the relative text, sometimes by up to three pages. Finally, better hierarchical organization could have benefited the book, since some minor cases have their own dedicated one-page sections, whereas enzymatic reactions are grouped into very long and general sections, including 21 pages on enzymatic hydrolysis and trans-esterification, followed by 10 pages on “miscellaneous” reactions.

In conclusion, this book consists of predominantly contemporary studies, which makes it a great reference to anyone working on DKR. The immediate relevance of many featured reactions is highlighted by their applications in drug and natural product synthesis, drawing the interest of the broad audience of organic, bioorganic, and medicinal chemists to this thorough anthology of important and current DKR methodologies.

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