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Nota di contenuto	Aziridines and Epoxides in Organic Synthesis; Foreword; Table of Contents; Preface; List of Contributors; 1 Asymmetric Synthesis of Epoxides and Aziridines from Aldehydes and Imines; 1.1 Introduction; 1.2 Asymmetric Epoxidation of Carbonyl Compounds; 1.2.1 Aryl, Vinyl, and Alkyl Epoxides; 1.2.1.1 Stoichiometric Ylide-mediated Epoxidation; 1.2.1.2 Catalytic Ylide-mediated Epoxidation; 1.2.1.3 Discussion of Factors Affecting Diastereo- and Enantioselectivity; 1.2.2 Terminal Epoxides; 1.2.3 Epoxy Esters, Amides, Acids, Ketones, and Sulfones; 1.2.3.1 Sulfur Ylide-mediated Epoxidation 1.2.3.2 Darzens Reaction 1.2.3.3 Darzens Reactions in the Presence of Chiral Auxiliaries; 1.2.3.4 Darzens Reactions with Chiral Reagents; 1.2.3.5 Darzens Reactions with Chiral Catalysts; 1.3 Asymmetric Aziridination of Imines; 1.3.1 Aziridines Bearing Electron-withdrawing Groups: Esters and Amides; 1.3.1.1 Aza-Darzens Route; 1.3.1.2 Reactions between Imines and Carbenes; 1.3.1.3 Aziridines by Guanidinium Ylide Chemistry; 1.3.2 Aziridines Bearing Alkyl, Aryl, Propargyl, and Vinyl Groups; 1.3.2.1 Aryl, Vinyl, and Alkyl Aziridines: Stoichiometric Asymmetric Ylide-mediated Aziridination 1.3.2.2 Aryl, Vinyl, and Alkyl Aziridines: Catalytic Asymmetric Ylide-

mediated Aziridination1.4 Summary and Outlook; References; 2 Vinylaziridines in Organic Synthesis; 2.1 Introduction; 2.2 Direct Synthesis of Vinylaziridines [1]; 2.2.1 Addition of Nitrene to Dienes; 2.2.2 Addition of Allylic Ylides and Related Reagents to Imines; 2.2.3 Cyclization of Amino Alcohols and Related Compounds; 2.2.4 Cyclization of Amino Allenes; 2.2.5 Aziridination of α -unsaturated Oximes and Hydrazones; 2.3 Ring-opening Reactions with Nucleophiles; 2.3.1 Hydride Reduction 2.3.2 Organocopper-mediated Alkylation2.3.3 Reactions with Oxygen Nucleophiles; 2.3.4 Reactions with Other Nucleophiles; 2.4 Isomerization Including Rearrangement; 2.4.1 Aza-[3,3]-Claisen Rearrangement; 2.4.2 Pyrroline Formation; 2.4.3 Aza-[2,3]-Wittig Rearrangement; 2.4.4 Hydrogen Shift; 2.4.5 Rearrangement with an Aryl Group on the Aziridine Carbon; 2.4.6 Epimerization; 2.5 Cycloaddition; 2.5.1 Cycloadditions of Isocyanates and Related Compounds; 2.5.2 Carbonylative Ring-expansion to Lactams; 2.6 Electron Transfer to Vinylaziridines; 2.7 Conclusions; References 3 Asymmetric Syntheses with Aziridinecarboxylate and Aziridinephosphonate Building Blocks3.1 Introduction; 3.2 Preparation of Aziridine-2-carboxylates and Aziridine-2-phosphonates; 3.2.1 Preparation of Aziridine-2-carboxylates; 3.2.1.1 Cyclization of Hydroxy Amino Esters; 3.2.1.2 Cyclization of Hydroxy Azido Esters; 3.2.1.3 Cyclization of α -Halo- and α -Sulfonyloxy-amino Esters and Amides; 3.2.1.4 Aziridination of α -unsaturated Esters; 3.2.1.5 Aziridination of Imines; 3.2.1.6 Aziridination of Aldehydes; 3.2.1.7 2-Carboxylation of Aziridines 3.2.1.8 Resolution of Racemic Aziridine-2-carboxylates

Sommario/riassunto

Aziridines and epoxides are among the most widely used intermediates in organic synthesis, acting as precursors to complex molecules due to the strains incorporated in their skeletons. Besides their importance as reactive intermediates, many biologically active compounds also contain these three-membered rings. Filling a gap in the literature, this clearly structured book presents the much needed information in a compact and concise way. The renowned editor has succeeded in gathering together excellent authors to cover synthesis, applications, and the biological aspects in equal depth.
