

Stereoselective Synthesis: Table of Contents

Volume 1

Johannes G. de Vries

1 Stereoselective Reactions of Carbon—Carbon Double Bonds

- 1.1 Dihydroxylation/Aminohydroxylation/Diamination of Carbon—Carbon Double Bonds
- 1.2 Epoxidation of Carbon—Carbon Double Bonds
- 1.3 Epoxidation of Enones by Nucleophilic Oxidation
- 1.4 Aziridination
- 1.5 Hydrogenation of Carbon—Carbon Double Bonds
- 1.6 Hydrogenation of Arenes and Hetarenes
- 1.7 Hydroboration of Carbon—Carbon Double Bonds
- 1.8 Carbometallation of Carbon—Carbon Double Bonds
- 1.9 Hydrocyanation, Hydrocarbonylation, Hydroformylation, Hydroacylation of Carbon—Carbon Double Bonds
- 1.10 Hydrovinylation and Hydroarylation of Carbon—Carbon Double Bonds
- 1.11 Reductive Coupling
- 1.12 Conjugate Addition Reactions (Michael; C-, O-, S- and N-Nucleophiles)
- 1.13 Hydroamination and Hydrophosphinylation of Carbon—Carbon Double Bonds
- 1.14 Cyclopropanation Reactions
- 1.15 Metathesis Reactions
- 1.16 Addition of Free Radicals to Carbon—Carbon Double and Triple Bonds
- 1.17 Hydrosilylation of Carbon—Carbon Double Bonds

Volume 2

Gary A. Molander

2 Stereoselective Reactions of Carbonyl and Imino Groups

- 2.1 Reduction of Carbonyl Groups: Hydrogenation
- 2.2 Reduction of Carbonyl Groups: Transfer Hydrogenation, Hydrosilylation, Hydroboration, Reduction with Borohydrides and Hydroaluminates
- 2.3 Enzymatic Reduction of Carbonyl Groups
- 2.4 Oxidative Deracemization
- 2.5 Reduction of Imino Groups: Hydrogenation, Transfer Hydrogenation, Hydrosilylation, Reductive Amination
- 2.6 Epoxidation of Carbonyl Groups and Imines
- 2.7 Alkylation of Carbonyl and Imino Groups
- 2.8 Allylation and Benzoylation of Carbonyl and Imino Groups
- 2.9 Arylation and Vinylation of Carbonyl and Imino Groups
- 2.10 Alkynylation of Carbonyl and Imino Groups
- 2.11 Hydrocyanation, Cyanosilylation and Hydrophosphinylation of Carbonyl and Imino Groups
- 2.12 Mukaiyama Aldol Reaction
- 2.13 Direct Aldol Reaction
- 2.14 Enzymatic Direct Aldol Reaction
- 2.15 Baylis–Hillman Reaction
- 2.16 Mannich Reaction
- 2.17 Benzoin and Stetter Reactions
- 2.18 Asymmetric Synthesis of Cyclic Ketals and Spiroaminals

Volume 3

P. Andrew Evans

3 Stereoselective Pericyclic Reactions, Cross Coupling, C—H and C—X Activation

- 3.1 [m+n] Cycloaddition Reactions
- 3.2 [4+2] Cycloaddition Reactions: Diels–Alder Reaction and hetero-Diels–Alder Reaction
- 3.3 [m+n+1] Cycloaddition Reactions
- 3.4 [m+n+2] Cycloaddition Reactions
- 3.5 Asymmetric Cycloisomerizations
- 3.6 Ene Reaction
- 3.7 Sigmatropic Rearrangements
- 3.8 Electrocyclic Reactions
- 3.9 Allylic Substitution Reactions (C—C, C—N, C—O)
- 3.10 Isomerizations to Form a Stereogenic Center and Allylic Rearrangements
- 3.11 Allylic and Benzylic Oxidation
- 3.12 Heck Reaction
- 3.13 C—C and C—X Bond Formation by C—H Activation
- 3.14 Cross Coupling
- 3.15 Protonation, Alkylation and Arylation of Enolates
- 3.16 α -Functionalization of Carbonyl Compounds (not enolates)
- 3.17 Baeyer-Villiger Reaction
- 3.18 Ring Opening of Epoxides, Aziridines and Cyclic Anhydrides
- 3.19 Acylation of Alcohols and Amines and Hydrolysis of Carboxylic Acid Derivatives
- 3.20 Fluorination and Trifluoromethylation
- 3.21 Polymerization
- 3.22 Oxidation of Sulfides