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Altri autori (Persone)	CossyJanine ArseniyadisS (Stellios) MeyerChristophe
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Pyrrolidines; 2.2.2.2 Dipyrrolidines; 2.2.2.3 Polyhydroxypyrrolidines; 2.2.3 Indolizidine Alkaloids; 2.2.3.1 Polycyclic Indolizidines; 2.2.3.2 Polyhydroxyindolizidines; 2.2.4 Pyrrolizidine Alkaloids; 2.3 Six-membered Nitrogen Heterocycles; 2.3.1 Piperidine Alkaloids; 2.3.1.1 Piperidines; 2.3.1.2 Piperidine Carboxylic Acids 2.3.1.3 Piperidones 2.3.1.4 Polyhydroxypiperidines; 2.3.2 Indolizidine Alkaloids; 2.3.3 Quinolizidine Alkaloids; 2.4 Seven-membered Nitrogen Heterocycles; 2.5 Eight-membered Nitrogen Heterocycles; 2.6 Conclusion; References; 3 Synthesis of Natural Products Containing Medium-size Oxygen Heterocycles by Ring-closing Alkene Metathesis; 3.1 Introduction; 3.2 General RCM Approaches to Medium Rings; 3.3 Laurencin; 3.4 Eunicellins/Eleutherobin; 3.5 Helianane; 3.6 Octalactin A; 3.7 Microcarpalide and the Herbarums; 3.8 Marine Ladder Toxins; 3.8.1 Ciguatoxin; 3.8.2 Brevetoxin 3.8.3 Gambierol, Gambieric Acid, Olefinic-ester Cyclizations 3.9 Conclusion; Acknowledgments; References; 4 Phosphorus and Sulfur Heterocycles via Ring-closing Metathesis: Application in Natural Product Synthesis; 4.1 Introduction; 4.2 Synthesis and Reactivity of Sultones Derived from RCM; 4.3 Total Synthesis of the Originally Proposed Structure of (±)-Mycothiazole; 4.4 Synthesis and Reactivity of Phosphates from RCM; 4.5 Applications of Phosphate Tethers in the Synthesis of Dolabelide C; 4.6 Conclusion; Acknowledgment; References 5 Synthesis of Natural Products Containing Macrocycles by Alkene Ring-closing Metathesis 5.1 Introduction; 5.2 Organization of the Chapter; 5.3 Macrocyclic Polyketides; 5.3.1 Resorcinylic Macrolides; 5.3.2 Salicylate Macrolides; 5.3.3 Other Antibiotic Macrolides; 5.3.4 Macrocyclic Musk; 5.3.5 Epothilones; 5.3.6 Amphidinolides; 5.3.7 Other Polyketides; 5.3.8 Natural Cyclophanes; 5.4 Terpenoids; 5.4.1 Diterpenoids; 5.4.2 Macrocyclic Lipids; 5.5 Macrocycles of Amino Acid Origin; 5.5.1 Macrolactams; 5.5.2 Cyclodepsipeptides; 5.5.3 Alkaloids; 5.6 Macrocyclic Glycolipids; 5.7 Conclusions and Outlook References

Sommario/riassunto

Emphasizing the impact of metathesis in natural product synthesis through the different types of key reactions, this ready reference is clearly structured and packed with important information, including representative experimental procedures for practical applications.
