Record Nr. UNINA9910819593103321 **Titolo** Modern tools for the synthesis of complex bioactive molecules [[electronic resource] /] / edited by Stellios Arseniyadis, Janine Cossy Pubbl/distr/stampa Hoboken, N.J., : Wiley, c2012 **ISBN** 1-283-59891-4 9786613911360 1-118-34287-9 1-118-34288-7 1-118-34285-2 Edizione [1st ed.] Descrizione fisica 1 online resource (600 p.) Classificazione SCI007000 Altri autori (Persone) ArseniyadisS (Stellios) CossyJanine Disciplina 547/.139 Soggetti Biomolecules - Synthesis **Biochemistry** Lingua di pubblicazione Inglese **Formato** Materiale a stampa Livello bibliografico Monografia Note generali Includes index. Includes bibliographical references and index. Nota di bibliografia Nota di contenuto MODERN TOOLS FOR THE SYNTHESIS OF COMPLEX BIOACTIVE MOLECULES; CONTENTS; FOREWORD; PREFACE; CONTRIBUTORS; CHAPTER 1: C-H FUNCTIONALIZATION: A NEW STRATEGY FOR THE SYNTHESIS OF BIOLOGICALLY ACTIVE NATURAL PRODUCTS; 1.1. INTRODUCTION; 1.2. PALLADIUM(0)-CATALYZED INTRAMOLECULAR DIRECT ARYLATION; 1.3. PALLADIUM(0)-CATALYZED INTRAMOLECULAR ALKENYLATION OF sp2 C-H BONDS; 1.4. PALLADIUM(0)-CATALYZED INTRAMOLECULAR ARYLATION OF sp3 C-H BONDS: 1.5. PALLADIUM(II)-MEDIATED INTRAMOLECULAR OXIDATIVE ALKENYLATION OF sp2 C-H **BONDS** 1.6. DIRECTING GROUP-ASSISTED PALLADIUM(II)- ENABLED CARBON-CARBON BOND FORMATION AT sp3 C-H BONDS1.7. PLATINUM(II)-MEDIATED ALKANE DEHYDROGENATION: 1.8. PALLADIUM(II)-ENABLED CARBON-OXYGEN BOND FORMATION AT sp3 C-H BONDS; 1.9. IRIDIUM-CATALYZED BORYLATION OF sp2 C-H BONDS; 1.10. RHODIUM (I)-CATALYZED INTRAMOLECULAR DIRECTED ALKYLATION OF sp2 C-H

BONDS; 1.11. RHODIUM(III)-CATALYZED SYNTHESIS OF NITROGEN-

CONTAINING HETEROCYCLES: 1.12. CONCLUSION; REFERENCES; CHAPTER 2: THE NEGISHI CROSS-COUPLING IN THE SYNTHESIS OF NATURAL PRODUCTS AND BIOACTIVE MOLECULES; 2.1. INTRODUCTION 2.2. SYNTHESIS OF NATURAL PRODUCTS 2.2.1. Synthesis of Polyenes; 2.2.2. Synthesis of Amino Acids and Macrocyclic Peptides; 2.2.3. Synthesis of Macrocycles; 2.2.4. Synthesis of Small Heterocycles; 2.3. LARGE-SCALE SYNTHESIS OF BIOLOGICALLY ACTIVE MOLECULES; 2.3.1. Nonsteroidal Ligand A-224817.0 1A; 2.3.2. Phosphodiesterase Inhibitor PDE472; 2.3.3. Reverse Transcriptase Inhibitor MIV-150; 2.3.4. B-Raf Kinase Inhibitors; 2.3.5. mGluR1 Antagonist; 2.4. CONCLUSION; REFERENCES; CHAPTER 3: METAL-CATALYZED C-HETEROATOM CROSS-COUPLING REACTIONS; 3.1. GENERAL INTRODUCTION 3.2. BUCHWALD-HARTWIG-TYPE REACTIONS 3.2.1. Introduction; 3.2.2. Mechanism; 3.2.3. Scope and Limitations; 3.2.4. Applications in the Synthesis of Complex Bioactive Molecules; 3.2.5. C-N Bond Formation; 3.2.6. C-S and C-O Bond Formation; 3.3. ULLMANN-TYPE REACTIONS; 3.3.1. Introduction; 3.3.2. Mechanism; 3.3.3. Scope and Limitations; 3.3.4. Applications in the Synthesis of Complex Bioactive Molecules: 3.3.5. C-N Bond Formation; 3.3.6. C-O Bond Formation; 3.4. MISCELLANEOUS; 3.4.1. Chan-Lam-Evans; 3.4.2. Iron/Copper-Mediated Methodologies; 3.4.3. Other Metals; 3.5. CONCLUSION; REFERENCES CHAPTER 4: GOLDEN OPPORTUNITIES IN THE SYNTHESIS OF NATURAL PRODUCTS AND BIOLOGICALLY ACTIVE COMPOUNDS 4.1. INTRODUCTION: 4.2. GOLD-CATALYZED FORMATION OF OXYGEN-CONTAINING HETEROCYCLES; 4.2.1. Cyclizations Leading to Furan and Pyran Derivatives; 4.2.2. Spiroketalizations; 4.2.3. Other Transformations: 4.3. GOLD-CATALYZED FORMATION OF NITROGEN-CONTAINING HETEROCYCLES; 4.3.1. Cyclizations Involving the Formation of a New C-N Bond; 4.3.2. Cyclizations Involving the Formation of a New C-C Bond; 4.4. GOLD-CATALYZED FORMATION OF **CARBOCYCLES** 4.4.1. Cyclizations Involving the Formation of a Single New C-C Bond

Sommario/riassunto

"This book provides an overview of the new technologies that have revolutionized organic chemistry and allowed an easy access to very important complex bioactives. It is the only book of its kind associating modern synthetic techniques and structurally complex bioactives, and includes some representative experimental procedures for particular methods. The synthesis of structurally complex molecules has become a real challenge among the synthetic community"--