1. Record Nr. UNINA9910876512703321

Titolo	Dynamic combinatorial chemistry / / edited by Joost N. H. Reek and Sijbren Otto
Pubbl/distr/stampa	Weinheim, : Wiley-VCH Verlag GmbH & Co., c2010
ISBN	1-282-48273-4 9786612482731 3-527-62970-X 3-527-62971-8
Descrizione fisica	1 online resource (213 p.)
Altri autori (Persone)	ReekJoost N. H OttoSijbren
Disciplina	547.2 615/.19
Soggetti	Combinatorial chemistry Chemistry, Organic
Lingua di pubblicazione	Inglese
Formato	Materiale a stampa
Livello bibliografico	Monografia
Note generali	Description based upon print version of record.
Nota di bibliografia	Includes bibliographical references and index.
Nota di contenuto	Dynamic Combinatorial Chemistry; Contents; List of Contributors; 1: History and Principles of Dynamic Combinatorial Chemistry; 1.1 Introduction; 1.2 History; 1.2.1 Thermodynamically Controlled Templated Synthesis; 1.2.2 Early DCLs; 1.3 Exercising Control over a DCL to Influence Species Distribution; 1.3.1 Selection through Molecular Recognition of an External Template; 1.3.2 Selection through Self-Templating; 1.3.3 Selection Directed by External Physical Stimuli; 1.3.4 Selection Through a Stabilizing Phase Change; 1.4 Designing a Dynamic Combinatorial System; 1.4.1 Building Block Design 1.4.2 Exchange Reactions1.4.3 Exchange Reactions Currently in Use; 1.4.3.1 Reversible Benzylic Nucleophilic Substitution; 1.4.3.2 Nitrone Exchange; 1.4.3.3 Reversible Nitroaldol Reaction; 1.4.3.4 Reversible Resorcinol and Alkanedial Condensation; 1.4.3.5 Reversible Boroxine Formation; 1.4.3.6 Phosphazide Exchange; 1.4.3.7 Transboroxoaromatic Esterification; 1.4.3.8 Future Reactions; 1.5 Conclusions; References; 2: The Practice of Dynamic Combinatorial Libraries: Analytical Chemistry, Experimental Design, and Data Analysis;

2.1 Introduction; 2.2 Analytical Methods; 2.2.1 MS Analysis
2.2.2 LC-MS Analysis2.2.3 Analysis by NMR; 2.2.4 Resin-Bound DCC; 2.3 Experimental Design; 2.3.1 Importance of Template Concentration; 2.3.2 Library Size; 2.4 Data Analysis; 2.4.1 Quantifying Equilibrium Constants; 2.4.2 DCLs as Sensors; 2.5 Conclusions; Acknowledgments; References; 3: Development of Synthetic Receptors using Dynamic Combinatorial Chemistry; 3.1 Introduction; 3.2 Experimental Considerations; 3.2.1 Preparation of DCLs; 3.2.1.1 Reversible Chemistry; 3.2.1.2 Building Block Design; 3.2.1.3 Building Block Concentration; 3.2.1.4 Assessing Equilibrium
3.2.2 Templating of the Library3.2.2.1 Ensuring Meaningful Amplifications; 3.2.2.2 Identification of Amplified Compounds; 3.2.3 Isolation of Amplified Receptors; 3.2.3.1 Biased Libraries; 3.2.3.2 Solid Supported Templates; 3.3 Selected Examples; 3.3.1 Synthetic Receptors for Metal Cations; 3.3.2 Synthetic Receptors for Anions; 3.3.3 Synthetic Receptors for Organic Guests; 3.4 Conclusions; References; 4: Dynamic Combinatorial Chemistry for Catalytic Applications; 4.1 Introduction; 4.2 Dynamic Combinatorial Approaches to Cage Catalysts
4.2.1 Libraries of Cage Molecules and Dynamic Selection of Hosts/Guests4.2.2 Catalysis with Cage Compounds and Possible Selection Procedures; 4.3 Dynamic Combinatorial Approaches to Transition Metal Catalysts; 4.3.1 Dynamic Libraries of Transition Metal Catalysts; 4.3.1.1 Library of Monodentate and Covalent Bidentate Ligands; 4.3.1.2 Library of Supramolecular Bidentate Ligands; 4.3.1.3 Library of Dynamic Supramolecular Templates; 4.3.1.4 Library of Dynamic Covalent Linkers; 4.3.2 Selection Procedures via Intermediates and TSAs; 4.3.2.1 TSA Approach
4.3.2.2 Selection of Catalyst Based on Intermediate Stability

Sommario/riassunto

This long-awaited first book on this exciting new field in organic and supramolecular chemistry explains the fundamentals as well as possible applications of DCC. Authored by the ""Who's Who"" of DCC it spans the whole range of topics: catalysts, sensors, polymers, ligands, receptors, concluding with a look at future developments and perspectives.All set to become the standard text in the field, this one-stop reference contains everything organic, catalytic, polymer, physical and biochemists need to know.