1. Record Nr. UNINA9910139039103321

| | |
|---|---|
| Titolo | Scaffold hopping in medicinal chemistry / / edited by Nathan Brown |
| Pubbl/distr/stampa | Weinheim, Germany : , : Wiley-VCH, , [2014]<br>©2014 |
| ISBN | 3-527-66516-1<br>3-527-66514-5<br>3-527-66517-X |
| Descrizione fisica | 1 online resource (326 p.) |
| Collana | Methods and principles in medicinal chemistry ; ; volume 58 |
| Altri autori (Persone) | BrownNathan |
| Disciplina | 615.19 |
| Soggetti | Pharmaceutical chemistry<br>Drug interactions |
| 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 | Scaffold Hopping in Medicinal Chemistry; Contents; List of Contributors; Preface; A Personal Foreword; Part One: Scaffolds: Identification, Representation Diversity, and Navigation; 1 Identifying and Representing Scaffolds; 1.1 Introduction; 1.2 History of Scaffold Representations; 1.3 Functional versus Structural Molecular Scaffolds; 1.4 Objective and Invariant Scaffold Representations; 1.4.1 Molecular Frameworks; 1.4.2 Scaffold Tree; 1.5 Maximum Common Substructures; 1.6 Privileged Scaffolds; 1.7 Conclusions; References; 2 Markush Structures and Chemical Patents; 2.1 Introduction<br>2.2 Encoding Markush Structures2.2.1 The r_group Record; 2.2.1.1 Exact R Groups; 2.2.1.2 Inexact R Groups; 2.2.1.3 Fused R Groups; 2.2.2 The Menguin Program; 2.2.3 Correspondence between the MIL File and the Markush Structure; 2.3 The Search Algorithm; 2.3.1 Matching R Groups; 2.3.1.1 Exact R Groups; 2.3.1.2 Inexact R Groups; 2.3.1.3 Fused R Groups; 2.3.1.4 Hydrogen Atoms; 2.3.1.5 Managing Multiple Fragment/R Group Matches; 2.4 Using Periscope for Scaffold Hopping; 2.4.1 Substructure Searching; 2.4.2 Free-Wilson Analysis; 2.4.3 Fast Followers; 2.5 Conclusions; References<br>3 Scaffold Diversity in Medicinal Chemistry Space3.1 Introduction; 3.1.1 Scaffold Representation; 3.1.2 What Do We Mean by Scaffold Diversity?; |

3.2 Scaffold Composition of Medicinal Chemistry Space; 3.2.1 Natural Products as a Source of Novel Medicinal Chemistry Scaffolds; 3.2.2 Enumerating Potential Medicinal Chemistry Scaffolds; 3.2.3 Using Scaffold Composition to Interpret Bioactivity Data; 3.3 Metrics for Quantifying the Scaffold Diversity of Medicinal Chemistry Space; 3.4 Visualizing the Scaffold Diversity of Medicinal Chemistry Space; 3.5 Conclusions; References
4 Scaffold Mining of Publicly Available Compound Data4.1 Introduction; 4.2 Scaffold Definition; 4.3 Selectivity of Scaffolds; 4.3.1 Privileged Substructures; 4.3.2 Target Community-Selective Scaffolds; 4.3.3 Target-Selective Scaffolds; 4.4 Target Promiscuity of Scaffolds; 4.4.1 Promiscuous BM Scaffolds and CSKs; 4.4.2 Scaffold-Target Family Profiles; 4.4.3 Promiscuous Scaffolds in Drugs; 4.5 Activity Cliff-Forming Scaffolds; 4.5.1 Activity Cliff Concept; 4.5.2 Multitarget Cliff-Forming Scaffolds; 4.6 Scaffolds with Defined Activity Progression; 4.6.1 Activity Profile Sequences
4.6.2 Conserved Scaffolds4.7 Scaffold Diversity of Pharmaceutical Targets; 4.7.1 Scaffold Hopping Potential; 4.7.2 Structural Relationships between Scaffolds; 4.7.3 Scaffold Hopping in Virtual Screening; 4.8 Conclusions; References; 5 Exploring Virtual Scaffold Spaces; 5.1 Introduction; 5.1.1 Virtual Chemistry; 5.1.2 Chemical Space; 5.1.3 Scaffold Definition; 5.2 The Comprehensive Enumeration of Parts of Chemical Space; 5.2.1 Fragments; 5.2.2 Ring Systems; 5.2.3 Reagents; 5.3 The Iterative Generation of Virtual Compounds; 5.3.1 Transformations; 5.3.2 Manual Selection of Chemical Modifications
5.3.3 Analog Generators

Sommario/riassunto

This first systematic treatment of the concept and practice of scaffold hopping shows the tricks of the trade and provides invaluable guidance for the reader's own projects.The first section serves as an introduction to the topic by describing the concept of scaffolds, their discovery, diversity and representation, and their importance for finding new chemical entities. The following part describes the most common tools and methods for scaffold hopping, whether topological, shape-based or structure-based. Methods such as CATS, Feature Trees, Feature Point Pharmacophores (FEPOPS), and S