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Combinetorial Chemistry

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ABSTRACT

Powerful new technologies such as high-throughput screening and combinatorial chemistry are revolutionizing drug discovery. Combinatorial chemistry has become an important part of the discovery and optimization process for novel drugs, affinity ligands, and catalysts.socyanide-based multi component reactions (MCR's) markedly differ from their usual two component counter parts.Combinatorial chemistry has given chemists access to vast numbers of molecules, but selecting the right one has proved more difficult.I express my thanks to the authors who contributed the careful and thorough reviews presented in this volume.The various methods of establishing the identity of the winners constitute the set of useful encoding strategies.In their Perspective, Lehn and Eliseev chart some of the recent progress in this field.This review highlights some of the strengths of large library combinatorial chemistry as a means of generating molecules for lead discovery, such as providing rich and robust structure-activity relationships around each hit series.I express my thanks to the authors who contributed the careful and thorough reviews presented in this volume

Keywords: Community Policing, Crime, Crime Reduction

1 History

The origins of combinatorial chemistry can be traced back to solid phase peptide synthesis in the 1960s, but as applied to small druglike molecules, the technology started to become widely applied during the latter part of the 1990s.The paper describes and compares the utility of the three chemical methods used for the synthesis of combinatorial libraries: (1) the mixed reactant method, (2) the portioningmixing method, and (3) light-directed synthesis. Small-molecule combinatorial chemistry has been the focus of much research and innovation during the last 20 years. Combinatorial chemistry was first conceived about 15 years ago - although it wasn't called that until the early 1990s.Its beginnings were slow and painful in the 1980s. The present account describes a story that has not been heretofore revealed in the history of its discovery.The first publication of the synthetic method was in 1988.

2Introduction :

The basic principle of combinatorial chemistry is to prepare libraries of a very large number of compounds then identify the useful components of the libraries. In the fields of medicine, biotechnology and pharmacology, drug discovery is the process by which new candidate medications are discovered.

As if that were not enough, many practitioners of this new “technique” discard the centuries-old goal of single compound synthesis in high yield and purity, and deliberately aim at the synthesis of enormous mixtures of compounds.

The traditional picture of drug discovery may envision a biologist extracting extracts from plants in a tropical rain forest in South America, and the resulting leaf components are then tested for biological activity.

3New Drug Discover :

Several combinatorial methods have been developed to create focused or diverse chemical libraries with a wide range of linear or macrocyclic chemical molecules: peptides, non-peptide oligomers, peptidomimetics, small-molecules, and natural product-like organic molecules. Essentially, it is a collection of techniques which allow for the synthesis of multiple compounds at the same time. These techniques are now largely automated, but do not necessarily have to be. Combinatorial chemistry may be defined as the systematic and repetitive, covalent connection of a set of different "building blocks" of varying structures to each other to yield a large array of diverse molecular entities. In this article, we provide a brief overview of combinatorial chemistry in drug discovery with emphasis on recently developed new technologies for design, synthesis, screening and decoding of combinatorial library.

4 Use Current importance :

Combinatorial chemistry uses chemical synthesis methods that make it possible to prepare a large number (up to even millions) of compositions in a single process.Combinatorial chemistry comprises chemical synthetic methods that make it possible to prepare a large number of compounds in a single process.In agriculture, novel compounds that can specifically inhibit plant germination or growth, act as antifungals, or as insecticides are widely sought.Several combinatorial methods have been developed to create focused or diverse chemical libraries with a wide range of linear or macrocyclic chemical molecules: peptides, non-peptide oligomers, peptidomimetics, small-molecules, and natural product-like organic molecules.

5 Advantages :

• The creation of large libraries of molecules in a short time is the main advantage of combinatorial chemistry over traditional.
•Ease of handling is especially important when dealing with expensive or time-intensive catalysts, which can be incorporated into flow reactors and automated processes.
• Rapid synthesis.
•Combinatorial chemistry comprises chemical synthetic methods that make it possible to prepare a large number of compounds in a single process.

6 Disadvantages :

- Assessment of the purity of the resin attached intermediates is also difficult.
- Stability of the support material can be poor under harsh reaction conditions.

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