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Perspective

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Medicinal chemistry and development of pharmaceuticals

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Description

Medicinal chemistry is a crossroads of chemistry, especially synthetic organic chemistry and pharmacology and various other biological disciplines, involved in the design, chemical synthesis, and development of pharmaceuticals or bioactive molecules (pharmaceuticals) for the market. Most pharmaceutical compounds are organic compounds, often with a wide range of small organic molecules .Generally protein drugs (natural and recombinant antibodies, hormones, etc.). Inorganic and organic metal compounds are also useful as drugs (eg, lithium and platinum based drugs such as lithium carbonate and cisplatin, and gallium).

In particular, the most common practice, medicinal chemistry, focuses on small organic molecules, which are closely combined with chemical biology, enzymology, structural biology, and aspects of synthetic organic chemistry and natural products, and computational chemistry. Including discovery and development of new treatments. In practice, it involves the chemical aspects of identification and then the systematic and thorough synthetic modification of new chemicals to make them suitable for therapeutic use. This includes synthetic and computational aspects for studying existing drugs and compounds under development in terms of their biological activity .Medicinal chemistry focuses on the quality of medicines and aims to ensure that they are suitable for use.At the organic interface, medicinal chemistry combines to shape a fixed of particularly interdisciplinary sciences, placing its organic, physical, and computational emphases along organic regions consisting of biochemistry, molecular biology, pharmacognosy and pharmacology, toxicology and veterinary and human remedy these management statistics and pharmaceutical commercial enterprise practices systematically oversee changing recognized chemical dealers such that once pharmaceutical formulation.

At the biological interface, medicinal chemistry combines to form a set of highly interdisciplinary sciences, setting its organic, physical, and computational emphases alongside biological areas such as biochemistry, molecular biology, pharmacognosy and pharmacology, toxicology and veterinary and human medicine; these, with project management, statistics, and pharmaceutical business practices, systematically oversee altering identified chemical agents such that after pharmaceutical formulation, they are safe and efficacious, and therefore suitable for use in treatment of disease. Discovery is the identification of novel active chemical compounds, often called “hits”, which are typically found by assay of compounds for a desired biological activity. Initial hits can come from completely fail to produce a marketable medicine. During the drug development (“D”) stage, only about one of the 15-25 drug candidates undergo the detailed safety and efficacy tests (animal and human) required to become a commercialized product. It has been shown to survive. And some of the few candidate drugs that have been successfully commercialized are unable to recover development costs in a highly competitive market, making only about one-third of the major commercial products of course, this is a long-term, high-risk activity, but the potential benefits for millions of patients with serious illnesses are always motivating. Modern medicinal chemists can play a role at every stage, from project initiation to new drug discovery, development, and marketing planning.

Discovery is the identity of novel energetic chemical substances normally located through assay of compounds for a organic activity. Initial hits can come from

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repurposing current dealers in the direction of brand new pathologic processes, and from observations of biologic consequences of recent or current herbal merchandise from bacteria, fungi, plants, etc. Finally, hits additionally often originate from en-masse trying out of chemical substances in opposition to organic objectives the use of biochemical or chemo proteomics assays in which the compounds can be from novel artificial chemical libraries recognized to have unique properties or from anciental chemical compound collections or libraries created through combinatorial chemistry.