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Heterocyclic Chemistry in Drug Design

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Message from the Guest Editor

Currently, the available chemical space includes more than 100 million organic compounds, mainly related to a limited set of classes and types. Meanwhile, modern drug design trends require the development of synthetic approaches to equally and diversely fill the chemical space as a source of drug-like structures. These trends have affected heterocyclic chemistry as the main "supplier" of drug-like molecules (all top 10 brand name small molecule drugs contain heterocyclic moieties), which stipulate strict requirements, both for bioactive compounds, as well as the methods of their synthesis. Thus, synthetic methods should provide a diversity of molecular architectonics, high chemo-, regio- and stereoselectivity, as well as atomic efficiency, in order to be ecologically and economically justified. The simultaneous implementation of these requirements is a rather difficult task, and research aimed at achieving a certain balance between them is relevant. As heterocycles are common fragments in the vast majority of marketed drugs, they obviously have a central role in modern drug design.

In this Special Issue, we will focus on recent advances in heterocyclic chemistry in drug design.