

Special Issue on

Biologically Active Hetero-Polycycles: Synthesis, Characterisation and Pharmaceutical Applications

CALL FOR PAPERS

The 21st century has brought many challenges to the pharmaceutical industry. The need for new active pharmaceutical ingredients (APIs) in every field of medicine is urgent. Biologically active polycycles constitute significant skeletons for active pharmaceutical ingredients. Polycycles exhibit a wide array of structures that contain either merged or bridged rings. These bridged systems are hard to obtain from ground state synthesis and there is a demand for them either as APIs or as building blocks for further synthesis. Polycycles that express biological activity usually have one or more heteroatoms (nitrogen, oxygen, etc.) in their structure and are called hetero-polycycles.

Ground state synthesis of hetero-polycycles is a daunting task, and bridged structures can be more easily obtained by the utilisation of photochemical cyclisation and cycloaddition reactions. Photochemistry is an area of organic synthesis that can lead to new basic skeletons with various functional groups and this makes them very good building blocks for pharmaceuticals. A vast majority of photochemically obtained polycyclic compounds are themselves tested with a wide array of *in silico* tools and *in vitro* biological assays, before the best candidates come to *in vivo* testing.

The aim of this Special Issue is to cover the major parts of the path that compounds have to pass from the genesis of an idea to becoming an API. Papers covering the issue of how a biologically active hetero-polycycle becomes an active pharmaceutical ingredient are of interest, both to the academic community and the pharmaceutical industry. Syntheses that would be most welcome are photochemical syntheses that also cover the purification of compounds. Structure determination and characterisation of those hetero-polycycles is a tasking but extremely interesting area of research and papers on this subject are also welcome. Emphasis can be made on specific absorption rate (SAR) and docking studies that lead to new ideas of compounds to be synthesized or their functionalisation. Papers that cover *in silico* studies of biological activity as well as determination of physico-chemical properties and absorption, distribution, metabolism, and excretion (ADME) properties of hetero-polycyclic compounds are desired. Lastly, *in vitro* biological assays that are conducted on new bridged and merged polycyclic compounds are an emerging field that requires attention as well. We welcome both original research and review articles.

Potential topics include but are not limited to the following:

- ▶ Bridged/merged polycycle synthesis
- ▶ Bridged/merged polycycle analysis
- ▶ Photochemical synthesis
- ▶ Heterocyclic photochemistry
- ▶ Incorporating heteroatoms into bridged compounds
- ▶ Incorporating heterocycles into bridged compounds
- ▶ SAR/docking studies on hetero-polycycles
- ▶ *In silico* predictions of biological activity
- ▶ *In vitro* biological activity assays
- ▶ *In vivo* biological activity assays

Authors can submit their manuscripts through the Manuscript Tracking System at <https://review.hindawi.com/submit?specialIssue=812165>.

Papers are published upon acceptance, regardless of the Special Issue publication date.

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