

Tentative Outline

Special Issue for Current Medicinal Chemistry

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Natural products as a promising therapeutic strategy to target cancer stem cells

Aims & Scope:

In spite of the impressive progress in diagnosis, surgery, chemotherapy and radiotherapy, the overall cancer mortality is still high. A number of innovative strategies, aimed to target malignant abnormalities of tumor cells are in development and begin to give important results. Metastatic cancers affecting multiple organ systems are particularly difficult to treat and oftentimes demand the partial or complete surgical resection of multiple tissues. Cancer stem cells (CSCs) hypothesis potentially explain many of the limitations of chemotherapy, or radiotherapy treatments. Recent studies have focused on understanding the unique phenotypic properties of CSCs from various tumor types, as well as the signaling pathways that underlie self-renewal and drug resistance. Natural products (NPs) represent a promising source for developing new investigational anti-cancer drugs to overcome the resistance caused by CSCs. In accordance with this, there is an urgent need to identify compounds that strike targets involved in CSC self-renewal and diffusion programs. Also, the CSC strategy opens a novel area of investigation of CSC specific antigens in order to reveal predictive biomarkers and additional therapeutics and targets. The aim of this special issue is to summarize recent research advances in this field. Likewise, the impressive diversity of natural product structures continues to stimulate and challenge chemists to invent new strategies to address challenges such as CSCs resistance. Finally, one should not ignore the power of combinatorial chemistry in the development and design of compounds based on computational modeling studies as a significant source of new synthetic agents derived from natural compounds. In this issue will also be studying those aspects of research.

Subtopics:

- Recent progress in screening of new or known natural products against CSC populations.
- Natural products as modulators of CSC Pathways.
- Natural compounds and their potential to sensitize CSCs to conventional treatments - chemotherapy or radiotherapy.
- Microbial natural products as abundant sources of new drug leads- to target cancer stem cells.
- The microRNAs and therapeutic strategies including natural products.
- CSCs targeted compounds- pharmacophore modeling, the rational optimization of active compounds.

Keywords:

Natural products, Cancer stem cells (CSCs), resistance, chemotherapy, radiotherapy.

Schedule:

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