

## Tentative Outline

### Special Issue for Current Medicinal Chemistry

Guest Editor: Dr. Roza Pawlowska

Co-Guest Editor: Dr. Arkadiusz Chworos

## Title of Thematic Issue: Nucleoside and nucleotide analogues as potential therapeutics

### Aims & Scope:

Nucleosides and nucleotides are active compounds performing a wide range of varied functions in cells and whole body. As building blocks for the synthesis of DNA and RNA, these molecules play an essential role in the correct flow of genetic information. Nucleosides and nucleotides play an important role in regulation and signaling pathways as substrates or cofactors in numerous enzymatic reactions. Furthermore, these compounds are engaged in regulation of various cellular processes, acting as donors of phosphate groups. Due to the presence of highly energetic phosphoranhhydrides, they also play an important intracellular role as energy storage.

The involvement of nucleosides and nucleotides in the wide range of key biological processes, makes them one of the most important molecules for the proper functioning of cells, tissues and whole organism. Any dysregulation in the composition, proportion and subcellular localization of these molecules lead to serious pathological consequences. Therefore, these molecules create a platform for designing new components with potential therapeutic activity in various branches of medicine. The nucleoside- and nucleotide-based research in the field of medicinal chemistry has a great potential. Nowadays, analogues of nucleosides and nucleotides constitute a broad group of compounds used in anticancer and antiviral therapy. However, the new derivatives are constantly being developed.

This special issue is focused on the recent advances in design, synthesis and biomedical applications of nucleoside- and nucleotide-based compounds. It covers chemical synthesis and biosynthesis of nucleotide analogues, as well as biological studies of their involvement in key biological processes, enzymatic tests, interactions with receptors and other targets. We also welcome manuscript presenting applicability of nucleosides and nucleotides derivatives against cancer, viral infections and other diseases.

**Keywords:** Nucleosides, nucleotides, nucleotide analogues, signaling molecules, antiviral compounds, anticancer agents, nucleotide synthesis, cellular signaling, enzyme inhibition.

### Subtopics:

The sub-topics to be covered within the issue should be provided:

- Recent advances in design, synthesis and biological applications of nucleoside and nucleotide analogues
- Nucleotide analogues as enzyme substrates/ inhibitors
- Nucleotide-based signaling molecules
- Nucleotide-based anticancer or antiviral agents

**Schedule:**

Submission deadline is March 31th 2022