Tentative Outline

Special Issue for Current Medicinal Chemistry

**Guest Editor:** Dr. Mehdi Rajabi

**Biologically active sphingolipids and other glycolipids in cancer pathogenesis and their therapeutic approaches.**

**Aims & Scope:**

Biologically active sphingolipids such as ceramide and sphingosine 1-phosphate (S1P), components of the plasma membrane where their hydrophilic portions are exposed toward the cell surface and the hydrophobic moieties are inserted into the membrane layer, play essential roles in cellular trafficking, signaling functions, and interactions of the cells with various agents, cell proliferation, differentiation, apoptosis, and cellular embryogenesis. Among the numerous sphingolipids, ceramide and S1P have received the greatest attention. Ceramide triggers differentiation and apoptosis, whereas its metabolite S1P exerts an anti-apoptotic effect and enhances cell growth and survival. Involvement of sphingolipid metabolism was demonstrated in many pathological disorders such as diabetes, solid tumors, neurodegenerative diseases, and infections as well as cardiovascular and metabolic disorders. Modulation of sphingolipid metabolism through the use of sphingolipid analogs alone or in combination with other agents as well as inhibition of key enzymes represent a promising therapeutic option to effectively block the growth of cancer cells and redirect them towards apoptosis, contributing also to overcome drug resistance. Thus, sphingolipid-metabolizing enzymes can be considered valid tools and targets for chemotherapeutic development. The present Special Issue is aimed at covering the main biological aspects of sphingolipid and ceramide metabolism in the context of the different cancers and the contribution of molecules that modulate sphingolipid metabolism to development of encouraging strategies for cancer treatment.

Topics to be covered (main bioactive component):

1. Pathways of sphingolipid metabolism
2. Biosynthesis of sphingolipids
3. Ceramide-regulated targets and pathways
4. Compartmentalized pathways of ceramide signaling
5. Targets and pathways regulated by Sphingosine 1-phosphate
6. Roles of ceramide/sphingosine-1-phosphate in specific cancers
7. Sphingolipid analogues and inhibitors of ceramide metabolism
8. Sphingosine 1-phosphate: thyroid and thyroid cancer
9. Glycosylation of sphingolipids
10. Structure–activity relationships of sphingolipid biological targets

Ruthenium compounds containing carbohydrate ligands: synthesis and biological activity

**Keywords:**
Sphingolipids, Plasma membrane, Cellular trafficking, Signaling function, Proliferation,
Sphingolipid metabolism, Sphingolipids and cancer, Sphingolipids and metabolic disorders,
Sphingolipid-metabolizing enzymes, Ceramides, Ceramide-enriched membrane, Ceramide metabolism, Sphingosine 1-phosphate, Sphingosine-1-phosphate receptors, Sphingosine,
Sphingosine kinase 1, Inhibitors of sphingosine kinase 1, Structure–activity relationships

**Schedule:**
November 2018.