Tentative Outline
Special Issue for Current Medicinal Chemistry

Guest Editor: Prof. Urszula Demkow

Recent advances in molecular biology and biochemistry of neutrophils: clinical implications

Aims & Scope:

Previously neutrophils were considered as short-lived cells with limited impact on the immunity. Currently they are recognized as highly sophisticated effector and regulatory cells with specific capacities linking innate and adaptive immune response. A plethora of new publications highlights significant association between neutrophils and numerous conditions including infections, inflammation, autoimmunity and cancer. New data are constantly reported on sophisticated intracellular pathways and biochemical events vital for the neutrophil biology, being of considerable importance to both basic science and clinical medicine. The proposed thematic issue will provide a systematic framework for understanding important molecular and biochemical mechanisms regulating neutrophils’ development, activation, effector functions and ultimately on how those cells participate in various disorders such as cancer and autoimmune diseases. The team of authors collectively possesses extensive knowledge and wide laboratory and clinical expertise in innate immunity. All contributors from three leading academic centres in Poland and in Netherlands have a clear track record in the field. Finally, the editor will work consistently to achieve the issue objectives and to secure sufficient breadth and depth of the content, with no redundancy of coverage between manuscripts. Molecular biology of neutrophils is a hot topic and offers a possibility to understand unknown aspects of medicine. This issue is designed as an integrated source of information including a relatively broad range of topics, covering not only new aspects of neutrophil biology but providing information underlying wide spectrum of possible clinical applications. The list of all proposed review papers with short description of their content is presented below.
Topics to be covered (main bioactive component):

- Latest developments in on the role of neutrophils in immunity, inflammation, autoimmunity, cancer and beyond.
- Molecular and biochemical mechanisms of neutrophil functions (cytotoxicity, oxidative and nitrosative stress, neutrophil extracellular traps).
- Neutrophils development, activation and autophagy.
- Neutrophilic mediators - therapeutic implications.
- Iron - molecular mechanism of the competition for iron between pathogens and neutrophils.
- Antibiotics and neutrophils function

Keywords:

Neutrophil, neutrophil elastase, neutrophil extracellular traps, autoimmunity, inflammation, cancer, autophagy, oxidative stress, autophagy, iron, antibiotics

Schedule:

January 2018.