



BioMed Research International

Special Issue on
Iron and Parasites

CALL FOR PAPERS

Iron is a vital transition metal for almost all organisms. Because of its toxicity and to prevent invaders from utilizing this element, mammals sequester the iron in proteins. In fact, in the host, iron homeostasis is carefully regulated and extracellular free iron is virtually null and unavailable to any intruder. Nonetheless, parasites depend absolutely on host iron for survival and often have a high iron requirement for growth, metabolism, and virulence. Thus, parasites have evolved diverse clever strategies to acquire this metal from host iron-containing proteins, and parasites in turn also show a perfect iron homeostasis of their own iron. Hence, iron plays a central role in the host-parasite relationship; this is a noteworthy subject of several disciplines in Biology. We invite authors to submit original research and review articles that will provide new insights to understand the complex interaction between eukaryotic parasites (protozoa and macroparasites, extracellular and intracellular stages, hemoparasites, and blood-sucker parasites, etc.) and iron and its impact in the host-parasite interplay. We are interested in all aspects that explore host-parasite interactions modulated by iron, in both humans and animals affected by parasitic diseases and how to take advantage of this knowledge to help resolve these infections.

Potential topics include, but are not limited to:

- ▶ The parasite iron-uptake mechanisms and their importance in the process for virulence
- ▶ Mechanisms for iron acquisition from free iron, iron-containing, iron-transporting, and iron-storage proteins in parasites
- ▶ Receptors, endocytosis, and signal transduction pathways for iron sources in parasites
- ▶ Iron-containing enzymes and proteins needed for parasitism
- ▶ Host iron-withholding mechanisms to control parasitism
- ▶ Iron detoxification in parasites including novel enzymatic pathways
- ▶ Parasitism outcome depending on iron availability during infection, i.e. anemia, and sideremia
- ▶ Evolution of the mechanisms of iron-dependent parasitism
- ▶ Iron regulation mechanisms in parasites
- ▶ Genomics, transcriptomics, and proteomics of parasites in response to iron levels
- ▶ Host iron responses in parasitic diseases
- ▶ Clinical trials to test drugs related to parasitic diseases depending on iron
- ▶ Vaccines based on parasite iron receptors or iron-binding proteins
- ▶ Iron-chelating drugs used to control parasitic diseases
- ▶ Animal models relevant to the study of iron regulation/acquisition pathways
- ▶ New methods to measure iron and iron-binding proteins

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