



## New Advances in Iron Metabolism, Ferritin and Heparin Research

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### Message from the Guest Editor

Iron is an essential trace element required as a cofactor for many enzymes involved in respiration, cellular metabolism, and DNA replication. However, iron is also potentially toxic when in excess or deregulated. Thus, iron homeostasis must be tightly controlled at the systemic and cellular level. Ferritin is an iron storage protein with a major role in the regulation of cellular iron metabolism and its concentration in serum is an important index of iron status. Heparin is a peptidic hormone that controls systemic iron availability and homeostasis and its deregulation leads either to iron overload (hemochromatosis) or iron deficiency (IRIDA). The expression of both proteins is regulated by iron, although in a very different manner, and they are both strongly affected by inflammation. Recent studies show that local or systemic alteration of iron metabolism occurs in various pathological conditions, including neurodegeneration, cancer, cardiovascular diseases and viral infections. In addition, the peculiar structure of ferritin is exploited for drug encapsulation and delivery.





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