Tentative Outline

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Iron Chelators in Biomedical applications

Aims & Scope:

Transition metals ions such as iron, copper, zinc etc. play important roles in normal metabolism of cells, as they are essential for growth and proliferation. These metals are generally co-factors of many macromolecules that play crucial roles like: oxygen transport, metabolism, and DNA synthesis. Control at cellular level of these metals is essential, because an excess can lead to toxicity, and deficiency may cause impairment or other diseases.

Iron is one of the most abundant transition metals in our body. Iron participates in many essential biological processes. Redox activity is one of the most important physiological phenomena catalyzed by iron. Conversion between divalent and trivalent forms of iron, after interaction with cellular oxidants or reductants is responsible for its redox activity. This conversion leads to the formation of radicals (such as hydroxyl radical, superoxide radical) that are cytotoxic species. These reactive oxygen species (ROS) react readily with biological molecules such as proteins, DNA and lipids. Therefore, iron chelation is a validated strategy in treating cancer, inflammation, infection, neuro-degeneration, adverse immune reactions and many more.

Keywords: Transition metals ions, neuro-degeneration, biological processes, oxygen transport, metabolism, DNA synthesis.

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