

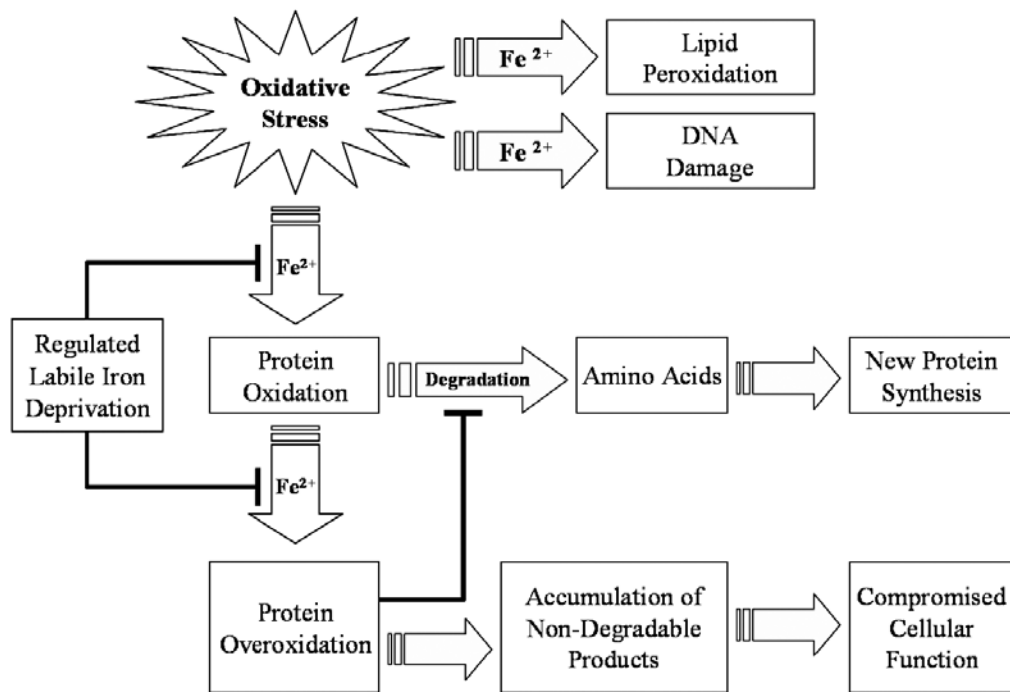


Figure 2. Proposed schematic representation of the steps that take place during aging. Oxidative stress conditions lead to formation of $O_2^{\cdot -}$ and H_2O_2 , which can oxidize cellular macromolecules mainly through the mediation of iron. Normally, the oxidized proteins are degraded to the constituting amino acids, which are subsequently used for synthesis of new proteins. However, under conditions of elevated levels of H_2O_2 and/or iron or decreased cellular degradation capacity, secondary oxidation of already oxidized proteins takes place and leads to formation of over-oxidized products that are not capable of further processing. The consequences of the formation of over-oxidation products are dual. First, they inhibit the cellular degradation systems, and secondly they progressively accumulate inside the cells, thus compromising the cells' structures and functions. These effects are especially apparent in terminally differentiated non-divided cells. It is proposed that regulated suppression of labile iron levels may decrease the rate of accumulation of over-oxidized materials and in this way favourably influence the aging process.