



Acciones del peróxido de hidrógeno (H₂O₂) como señalizador redox y como agente de estrés oxidante en la diabetes mellitus [

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text (article)

Analítica

Cellular metabolism is a constant source of reactive oxygen species (ROS). The production of hydrogen peroxide (H₂O₂) is particularly relevant, due to its role in cellular physiology. H₂O₂ can act as a classical intracellular signaling molecule in several processes like cell proliferation, hormone synthesis and secretion, immune cell regulation, angiogenesis, and apoptosis. However, H₂O₂ overproduction and accumulation, derived from increased mitochondrial electron transport chain activity, glucose autooxidation, and increased polyol flux, contribute to an imbalance in the redox state of the cells. High concentration of H₂O₂ induces cellular dysfunction through oxidation of macromolecules like proteins, lipids, carbohydrates and nucleic acids. H₂O₂-induced oxidative damage can contribute to the development and progression of degenerative diseases such as diabetes mellitus. Indeed, chronic hyperglycemia has been shown to cause an increased H₂O₂ concentration and oxidative damage that contribute to the pathogenesis and progression of diabetes complications

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