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Auranofin

National Cancer Institute

Source

National Cancer Institute. *Auranofin*. NCI Thesaurus. Code C65242.

An orally available, lipophilic, organogold compound, used to treat rheumatoid arthritis, with anti-inflammatory and potential antineoplastic activities. Auranofin interacts with selenocysteine residue within the redox-active domain of mitochondrial thioredoxin reductase (TrxR), thereby blocking the activity of TrxR. As a result, this agent induces mitochondrial oxidative stress leading to the induction of apoptosis. Furthermore, this agent strongly inhibits the JAK1/STAT3 signal transduction pathway, thereby suppressing expression of immune factors involved in inflammation. TrxR, overexpressed in many cancer cell types, inhibits apoptosis, promotes cell growth and survival and plays a role in resistance to chemotherapy; TrxR catalyzes the reduction of oxidized thioredoxin (Trx) and plays a central role in regulating cellular redox homeostasis.