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Direct toxicity of Rose Bengal in MCF-٧ cell line: Role of apoptosis

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View references (٣١)

Abstract

Current therapies for breast cancer are often limited by short-term efficacy due to the emergence of drug resistance. In view of this, there is much interest in the identification of new agents for the treatment of breast cancer. Rose Bengal (RB) has been used as a photosensitiser in photodynamic treatment. In the present study, we investigated the direct cytotoxic and proapoptotic effects of RB, not as a photosensitiser, in MCF-٧ cells. Cell viability was quantitated by MTT assay. Apoptotic cells were determined using PI staining of DNA fragmentation by flow cytometry. Bax protein expression was studied by western blotting. ROS was measured using DCF-DA by flow cytometry analysis. The result showed RB decreased cell viability in MCF-٧ cells in a concentration- and time-dependent manner. RB induced a sub-G١ peak in flow cytometry histogram of treated cells indicating apoptosis is involved in this toxicity. In Western blot analysis, Bax expression significantly increased in RB-treated cells. RB could also increase ROS production in MCF-٧ cells but antioxidant GSH could not decrease the toxicity indicating this toxicity was independent of ROS production. Thus RB exerts proapoptotic effects in a MCF-٧ cells and could be considered as a potential chemotherapeutic agent in breast cancer.

Reaxys Database Information

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Author keywords

Apoptosis; Bax protein; MCF-٧; Rose Bengal; Toxicity

Indexed Keywords

EMTREE drug terms: ٣ (٤،٥ dimethyl ٢ thiazolyl) ٢،٥ diphenyltetrazolium bromide; antineoplastic agent; dichlorodihydrofluorescein diacetate; propidium iodide; protein Bax; reactive oxygen metabolite; rose bengal

EMTREE medical terms: antineoplastic activity; apoptosis; article; breast adenocarcinoma; cell cycle G١ phase; cell strain MCF ٧; cell viability; concentration response; controlled study; cytotoxicity; DNA fragmentation; flow cytometry; histogram; human; human cell; protein expression; quantitative analysis; staining; Western blotting

MeSH: Antineoplastic Agents; Apoptosis; Breast Neoplasms; Cell Line, Tumor; Cell Survival; Female; Humans; Reactive Oxygen Species; Rose Bengal

Medline is the source for the MeSH terms of this document.

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