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Effect of Gold Nanoparticle-Hypericin Mediated Photodynamic Therapy on breast Cancer Cells.

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Cancer is a global emergency that needs instant intervention. Breast cancer is the second most common cancer after Lung, and the first most common cancer amongst women. Current treatments are linked with adverse side effects, treatment failure and cancer relapse. Photodynamic therapy (PDT) is one of the emerging cancer treatment options that is highly selective and specific towards cancer cells. Consequently, the use of gold nanoparticles (AuNP) further enhances the efficacy of PDT. In this study, gold-nanoparticle (AuNP) conjugated Hypericin (Hyp) mediated PDT was used for the treatment of MCF-7 human breast cancer cells by inducing cell death, in vitro. Cellular responses after treatment at 12 and 24 h incubation post PDT, and at different laser fluencies was observed. The morphological changes, viability, cytotoxicity and cell death analysis by Annexin V/PI staining was performed. The results showed activation of the apoptotic pathway with characteristic features of dying cells observed in their morphology and biochemical responses. Hence this study provided an insight into the application of advanced PDT in breast cancer treatment by actively targeting the apoptotic cell death pathway in vitro.

Apply to be considered for a student ; award (Yes / No)?

Yes

Level for award;(Hons, MSc, PhD, N/A)?

PhD

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