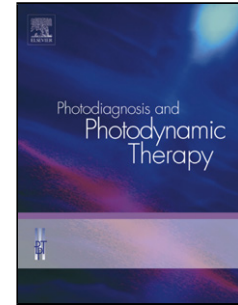


## Accepted Manuscript

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# Effect of photodynamic therapy based on indocyanine green on expression of apoptosis-related genes in human gingival fibroblast cells

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**Running title:** ICG-PDT effects on expression of apoptosis-related genes

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## Highlights

- Photodynamic therapy (PDT) induced the significant expression of *BAX* in human gingival fibroblast cells.
- Laser irradiation and indocyanine green (ICG) alone revealed no significant effects on the expression of *BAX* gene.
- Treatment with laser irradiation, ICG alone, and ICG-PDT caused no observable *BCL-2* gene expression.

## Abstract:

**Background:** Periodontal diseases refer to inflammation of the gingiva, induction of apoptosis in human gingival fibroblast cells, destruction of the surrounding tissues, and early bone loss resulting in infections due to the pathogenic activity of the microorganisms and the host immune inflammatory responses. Recent investigations have suggested that antimicrobial photodynamic therapy (aPDT) can be an adjunct treatment therapy for periodontal infections.

**Aim:** To prove the lack of side effects of PDT on periodontal tissues, we investigated the expression of *BAX* and *BCL-2* genes that are involved in apoptosis after the PDT on human gingival fibroblast (HGF) cells.

**Materials and Methods:** In this study the effect of PDT based on indocyanine green (ICG) as a photosensitizer with the diode laser were tested on the expression of *BAX* and *BCL-2* genes in monolayers of HGF cells. The effects of PDT on the expression of *BAX* and *BCL-2* genes were evaluated by real-time quantitative reverse transcription PCR.

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