

Cell Growth Modulation of Human Cells Irradiated *in Vitro* with Low-Level Laser Therapy

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ABSTRACT

Objective: The aim of this study was to investigate the effects of different wavelengths and doses of laser radiation on *in vitro* cell proliferation. We evaluated the biological effects of low-level laser therapy (LLLT) on two human cancer cell lines: HeLa (epithelial adenocarcinoma) and TK6 (lymphoblast). Our attention was focused on the combination of the two laser emissions as it could have a synergic effect greater than the single emission applied separately. **Background Data:** The effects of LLLT on human cells are still poorly understood and unexplained. Several cell types were found non responsive to laser bio stimulation; in other cases, only a partial activation was observed. **Methods:** A laser device was used for cell irradiation with a continuous wave diode ($\lambda = 808$ nm), a pulsed wave diode ($\lambda = 905$ nm), and a combined wave diodes ($\lambda = 808$ nm + 905 nm), in the dose range of 1–60 J/cm². **Results:** The effect of the combined low-level 808–905-nm diode laser irradiation were slightly superior to those achieved with either laser alone in HeLa cells. TK6 cellular proliferation was not found to be significantly affected by any of the energy levels and varying exposure doses investigated. **Conclusions:** Our results are a confirmation of previous observations carried out on human cells, where only the proliferation of slowly growing cell populations appeared to be stimulated by laser light.

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