

9th International Conference and Exhibition on

Advanced Cell and Gene Therapy

March 21-22, 2019 | Rome, Italy

Effects of different fluences of 980 nm diode laser irradiation on gingival fibroblast and periodontal ligament stem cells

Alireza Mirzaei
RWTH Aachen University, Germany

Diode lasers with a 980 nm wave lengths have become popular in oral surgeries. Their cellular phototherapy effects are a topic needing further investigations. The aim of this study was to examine the effects of laser irradiation with this wavelength on human periodontal ligament stem cells (PDLSCs) and human gingival fibroblasts (HGF), which play an important role in periodontal tissue regeneration and oral wound healing. HGF cell line was purchased from National Cell Bank (Iran), PDLSCs were isolated from adult human third molars. Fluences (energy densities) of 0.5, 1.5, 2.5 J/cm² with a 200 mw output power of a continuous wave 980 nm diode laser were tested to determine the effect on cell viability and proliferation. Laser radiation had a positive stimulatory effect on the viability of both cell types within 24 hours, although only the effect of 0.5 J/cm² and in HGF group was statistically significant. However, this trend did not go on 48 h later and a reduction in proliferation of both cell types compared to control groups was observed. A single session of 980 nm laser application with the settings used in this study did not have a prolonged positive effect on HGF and PDLsc viability and proliferations.

drphbonn@gmail.com