

# Evaluation of cellular viability after photodynamic therapy in oral squamous cell carcinoma

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**Introduction:** Squamous cell carcinoma is the most prevalent malignant neoplasm in the oral cavity. The main therapeutic modalities of OSCC are surgery and radiotherapy alone or in combination with cisplatin. Photodynamic Therapy (PDT) is based on the use of photosensitizers, whose cytotoxicity is activated by light, leading to the death of target cells. Some studies have demonstrated that PDT can be an alternative treatment to OSCC in initial stages. **Objective:** The aim of this study was to evaluate the effects of PDT in the cellular viability of OSCC cell lines using different dosimetric parameters. **Material and Methods:** CA1 and Luc4 cell lines were cultivated in DMEMF12+10%FBS and supplements.  $5 \times 10^4$  cells were plated in 96-well plate and divided in to the following groups: control, LED, 5-aminolevulinic acid (5-ALA) and 5-ALA-PDT (5-ALA+LED). Cells in the 5-ALA and PDT groups were incubated with 0.5 mM; 0.75 mM e 1mM 5-ALA at 37°C for 4h. Next, cells were washed and the groups LED and PDT were irradiated with a diode emission light (LED) using the BioLambda LedBOX, 660nm, 3J/cm<sup>2</sup> or 6J/cm<sup>2</sup>, 49.5 mW/cm<sup>2</sup> and 40% or 80% of power capacity. Cell viability was evaluated after 24h using the MTS and eutral Red assays. **Results:** CA1 and Luc4 cell lines showed a significant decrease in cellular viability after 5-ALA-PDT with 6J/cm<sup>2</sup>, 5-ALA at 1mM and 80% of power. No difference in cell viability was observed with 3J/cm<sup>2</sup> or 6J/cm<sup>2</sup> and 40 % and 80% of power in both cell lines. In addition, a significant decrease in neutral red incorporation was noticed in PDT groups (1mM 5-ALA, 6J/cm<sup>2</sup> and 80% of power) from CA1 and Luc4 when compared to all groups. **Conclusion:** PDT was able to decrease the cellular viability in OSCC cell lines and further studies are needed to evaluate its effects in others biological processes in OSCC.

## Biography

Marlene Ferreira works at Nove de Julho University as a professor in the Health Department. She teaches Anatomy and Phisiology to Health Science undergraduate students for the last 5 years. She has a Higher Education Specialization and a Master's degree in Morphofunctional Sciences from University of São Paulo in 2014. Her primary research interests are in the field of cellular biology and cancer. Specifically, nowadays she is interested in oral squamous stem cells and the influence of photodynamic therapy. She is developing her doctoral thesis at Nove de Julho University in Biofotonic Applied to Health Science. In her free time, she spends a few hours with family, husband and friends.