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## Photobiomodulation of Isolated Lung Cancer Stem cells

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**Abstract content** (Max 300 words) **Formatting & Special chars**

Background: Research has uncovered that one of the plausible reasons for cancer relapse is the existence of stem like cells, possessing cancer properties, called cancer stem cells (CSCs). Cancer research is highly focused on improving current cancer treatments. One method of targeted cancer therapy is Photodynamic therapy (PDT), where Low Intensity Laser Irradiation (LILI), along with a photochemical compound, is used. When implementing a mechanism by which CSCs are targeted, LILI might pose as a viable treatment option. Studies have shown that using high fluences of LILI (HF-LILI) can induce cell death in normal and neoplastic cells. Further investigations on cell death induced by HF-LILI of CSCs still needs to be explored. Methodology: Lung CSCs were isolated using the stem cell marker CD 133 and were exposed to LILI at wavelengths of 636, 825 and 1060 nm at fluences ranging from 5 J/cm<sup>2</sup> to 40 J/cm<sup>2</sup>. Post irradiation biochemical assays were conducted to monitor cellular responses including; proliferation and cytotoxicity, after 24 hours incubation. Discussion: Studies have indicated that LILI, when treating lung CSCs, can induce either a bio-stimulatory or bio-inhibitory effect depending on the wavelength and fluence used. This study indicated successful cell damage of lung CSCs when using HF-LILI, as well as, stimulation of ATP production, when using lower fluences of LILI.

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

Yes

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

MSc

**Main supervisor (name and email) and his / her institution**

Prof Heidi Abrahamse, habrahamse@uj.ac.za, University of Johannesburg

**Would you like to submit a short paper for the Conference Proceedings (Yes / No)?**

Yes

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Yes

**Primary author:** Ms CROUS, Anine (Student at University of Johannesburg)

**Co-author:** Prof. ABRAHAMSE, Heidi (Director: Laser Research Center University of Johannesburg)

**Presenter:** Ms CROUS, Anine (Student at University of Johannesburg)

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