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## Ability of Gold Nanoparticles in mediating cellular damage in human breast cancer cells (MCF-7) using laser irradiation

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**Abstract content**   
 (Max 300 words)

Cancer is considered one of the scariest diseases that has severe impacts on health, social and economic global aspects. Nanomedicine is considered a new approach for cancer treatment. Certain types of cancer could be prevented as they are lifestyle dependent and caused by both external and internal factors. Despite numerous efforts, the condition remains a dominant health-threatening issue worldwide. In the United States, it is estimated that over 1.6 million new cases will be diagnosed and would result in 585,720 deaths in 2014. Breast cancer is one of the most frequently diagnosed cancers worldwide and is the leading cancer among South African women.

Among available treatments, Photodynamic therapy (PDT) is a targeted and light induced therapy that depends upon successful localization and specific activation of a chemotherapeutic agent to induce cell death. Nanotechnology in cancer therapy provides interesting possibilities in detecting and eradicating tumors with minimal damage to health tissues. This study aimed to synthesize and characterize a conjugate made of Zinc-Phthalocyanine (ZnPc) and gold nanoparticles (AuNPs), to identify subcellular localization as well as effects of the conjugate prior to and post laser irradiation in a breast cancer cell line (MCF-7). This presentation will discuss the outcomes of the combined treatment on cell morphology, viability, proliferation and cytotoxicity.

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

Yes

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

PhD

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

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

Yes

**Please indicate whether<br>this abstract may be<br>published online<br>(Yes / No)**

Yes

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