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Inhibition of Lung Cancer Migration and Invasion Using a Gold Nano Photosensitizer Conjugate.

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Despite advances in cancer treatment, lung cancer remains one of the leading causes of cancer deaths worldwide. Lung cancer can spread through the blood and lymphatic systems, as well as infiltrate healthy tissues underlying the lung, resulting in both distant and local metastasis. The most common causes of death are cancer metastasis and the threat of secondary tumours. The ability of cells to invade, which is largely controlled by cell motility, is an essential aspect of metastases. Photodynamic therapy (PDT), a minimally invasive cancer treatment, is based on the concept of light stimulation of a photosensitizing agent at a certain wavelength, which, combined with an optimum energy density of light activation, induces the photosensitizer (PS) to reach their triplet state, where oxidants causing tumour cell death can form in the presence of molecular oxygen. Due to their physicochemical and optical properties, gold nanoparticles have been shown to improve the effectivity of PDT by increasing the loading potential of the PS within cancer cells, are biocompatible and non-toxic, and give improved permeability and retention. The use of gold nanoparticles in nano-mediated PDT has been shown to cause lung cancer cell death. Several physiological studies, including migration, cell cycle analysis and the extracellular matrix cell invasion assay were carried out in this study to determine whether PDT using a gold nano sensitizer inhibits lung cancer migration and invasion. The results show that nano mediated PDT treatment of lung cancer inhibits lung cancer migration and invasion, causes cell cycle arrest, and reduces lung cancer proliferative abilities, elaborating on the efficacy of nano mediated PDT treatment of lung cancer.

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

No

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

N/A

Primary author: CROUS, Anine (University of Johannesburg)

Co-author: Prof. ABRAHAMSE, Heidi (University of Johannesburg)

Presenter: CROUS, Anine (University of Johannesburg)

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