# Photodynamic Therapy Based on Eosin Y Transport Using Boron Nitride Nanotubes and Carbon Nanotubes To Induce Apoptosis in Pancreatic Cancer Cells

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Photodynamic therapy is the combination of a light source that stimulates a photo-sensitizing agent in an oxygen-rich environment triggering the production of singlet oxygen, causing apoptosis. Due to the difficulties in the detection and prevention of pancreatic cancer, the purpose of the investigation is to determine if PDT based on the transport of eosin-Y through BNNTs and CNTs will be an effective method to induce apoptosis in pancreatic cancer cells. If the treatment in KPC cells with eosin Y, and both nanotubes produce 1O2 and it maintains its high reactivity, then a higher concentration will induce oxidative damage and apoptosis in KPC cells. There were 4 Control Groups and 2 Experimental Groups. Group I was not modified, while nanotubes with eosin-Y were added to Groups II and III and cell irradiation was avoided. Group IV was irradiated without the presence of nanotubes or eosin-Y. The Experimental Groups were treated with nanotubes and eosin-Y together with cell irradiation. The effectiveness of the treatment was determined by performing a T test. The samples of eosin-Y at 25 and 100% with BNNTs and CNTs showed that they could have clinical relevance, which will improve the quality of life of the patients. PDT performed on pancreatic cancer cells with both solutions was found to be effective.

**Awards Won:**