

Abstract Submitted
for the MAR05 Meeting of
The American Physical Society

Laser Assisted Cancer Immunotherapy: An Experimental Therapeutic Approach in Balb/c Mice¹ JOHN GRAY, PRADIP BANDYOPADHYAY², Hendrix College — Among the different therapeutic approaches to treat superficial malignant tumors, Laser Assisted Cancer Immunotherapy (LACI) shows promise. Experiments are in progress in our laboratory based on the concept of LACI which utilizes a light absorbing dye (Indocyanine Green, ICG), an immunoadjuvant (Glycated Chitosan, GC), and an infrared diode laser (1-15w) operating at 804 nm. Superficial tumors (5 to 7 mm in diameter) of the T4 cell line are grown in an animal model (Balb/C mice). The tumors are injected with ICG and GC prior to interstitial/surface irradiation of the tumor. The tumors' internal temperatures are monitored during the irradiation by invasive (microthermocouples) as well as noninvasive (infrared detector) modes. Along with the various experimental parameters, only the laser delivery (interstitial/surface) and laser intensity are varied in this initial stage so that the tumor temperature is in the range of 55 degrees C to 65 degrees C to ensure hyperthermic cell killing. The goal of the project is to determine the precise temperature range through which primary tumor necrosis and a vigorous immune response will end in tumor elimination. Experimental results coupled with a theoretical framework of laser-tissue interactions will be presented in the context of this therapeutic approach.

¹Work Supported by NIH Grant CA90868-01A2

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Date submitted: 23 Nov 2004

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