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**Bryan Alexander Dawkins\*** (bdawkins@uco.edu) and **Sean Michael Lavery**. *Analysis of the Innate and Adaptive Immune response in Antitumor Laser Immunotherapy.*

We will present a mathematical model describing the overall dynamics of the immune response in antitumor laser immunotherapy. Our analysis will include several laser immunotherapy treatment methods. The adaptive immune cells involved in treatment are Dendritic cells, Cytotoxic and Helper T cells, and B cells. Also, directly associated with adaptive immunity are antibodies and tumor antigen, which play a central role in the success of the treatment. We will discuss how the role of antibodies is related to regulatory T cells and innate immune system cells such as macrophages, natural killer cells, and neutrophils. We will describe how the possible outcomes of each treatment method is predicted by key parameters of our model. (Received September 16, 2014)