

Abstract Submitted
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Low Temperature Plasma Kills SCaBER Cancer Cells NAZIR BAREKZI, LUCAS VAN WAY, MOUNIR LAROUCSSI, Old Dominion University — Squamous cell carcinoma of the bladder is a rare type of bladder cancer that forms as a result of chronic irritation of the epithelial lining of the bladder. The cell line used in this study is SCaBER (ATCC® HTB-3TM) derived from squamous cell carcinoma of the human urinary bladder. Current treatments of bladder cancer include surgery, radiation and chemotherapy. However, the cost of these treatments, the potential toxicity of the chemotherapeutic agents and the systemic side-effects warrant an alternative to current cancer treatment. This paper represents preliminary studies to determine the effects of biologically tolerant plasma (BTP) on a cell line of human bladder cancer cells. Previous work by our group using the plasma pencil [1] revealed the efficacy of BTP on leukemia cells suspended in solution [2]. Based on these earlier findings we hypothesized that the plasma exposure would elicit a similar programmed cell death in the SCaBER cells. Trypan blue exclusion and MTT assays revealed the cell killing after exposure to BTP. Our study indicates that low temperature plasma generated by ionizing helium gas and the reactive species may be a suitable and safe alternative for cancer therapy. [1] Laroussi M and Lu X. 2005. *Applied Physics Letters*, **87**(113902):1-3. [2] Barekzi N and Laroussi M. 2012. *Journal of Physics D: Applied Physics*. **45**(42): p.422002.

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