Cold Atmospheric Plasma in the Treatment of Malignant Glioma

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Recent investigations into cold atmospheric plasma (CAP) technology have revealed very promising results in various malignancies [1,2]. In specific, we previously demonstrated a unique selectivity of CAP for cancer cells *in vitro* and *in vivo* [1]. This attribute would be especially useful in the treatment of glioblastoma multiforme (GBM), a very aggressive and invasive primary brain malignancy which continues to carry a poor survival despite multi-modal therapies. We investigated the role of CAP in the treatment of glioma *in vitro*. Three glioma cell lines (U87, A172, U373) were grown and exposed to CAP for various time points between 15 to 180 seconds. The impact of CAP on cell growth was assessed with microscopy and MTT assays. Additionally, we evaluated the cytotoxicity, the role of caspase activation, and various intracellular messengers (i.e. cGMP).
Treatment with CAP resulted in a dose-dependent decrease in cell proliferation (Figure 1). Caspase activity and cGMP levels were also altered. These results further characterize the role of CAP as a promising therapy in the treatment of GBM.

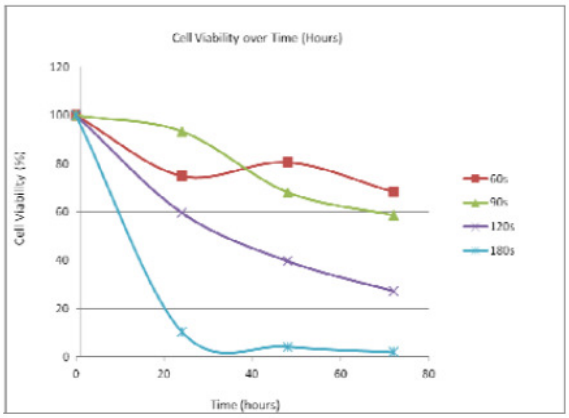

Figure 1: *Cell viability over time for various time exposures of U87 cells. The exposure times ranged from 60 seconds (60s) to 180 seconds (180s).*

References

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