

Abstract Submitted
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Anti-tumor Effects of Plasma Activated Media and Correlation with Hydrogen Peroxide Concentration. MOUNIR LAROUSSE, SOHEILA MOHADES, NAZIR BAREKZI, VENKAT MARUTHAMUTHU, HAMID RAZAVI, Old Dominion University — Plasma activated media (PAM) can induce death in cancer cells. In our research, PAM is produced by exposing liquid culture medium to a helium plasma pencil. Reactive oxygen and nitrogen species in the aqueous state are known factors in anti-tumor effects of PAM. The duration of plasma exposure determines the concentrations of reactive species produced in PAM. Stability of the plasma generated reactive species and their lifetime depend on parameters such as the chemical composition of the medium. Here, a complete cell culture medium was employed to make PAM. Later, PAM was used to treat SCaBER cancer cells either as an immediate PAM (right after exposure) or as an aged-PAM (after storage). SCaBER (ATCC®HTB3TM) is an epithelial cell line from a human bladder with the squamous carcinoma disease. A normal epithelial cell line from a kidney tissue of a dog - MDCK (ATCC®CCL-34TM) - was used to analyze the selective effect of PAM. Correspondingly, we measured the concentration of hydrogen peroxide- as a stable species with biological impact on cell viability- in both immediate PAM and aged-PAM. In addition, we report on the effect of serum supplemented in PAM on the H₂O₂ concentration measured by Amplex red assay kit. Finally, we evaluate the effects of PAM on growth and morphological changes in MDCK cells using fluorescence microscopy.

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