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Forensic Biology & Biology Pre-Medicine; Research done in Biology Department

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Project title: Effects of Extracellular Exosomes on the Spread of HPV Negative Cervical Cancer

Cancer is the disease caused by uncontrollable division of cells in a part of the body. Exosomes are small extracellular vesicles, excreted from many cell types, which contain an array of biomolecules ranging from DNA, miRNA, proteins, and lipids. Extensive research in the field has shown that exosomes play a critical role in the pathogenesis, immune suppression, and metastasis of cancer. Due to their importance in cancer biology, we sought to understand the effects of Human Papilloma Virus (HPV) negative cervical cancer exosomes on non-carcinoma cells. Because of a lack of understanding of how HPV negative cervical cancer arises and spreads, we extracted exosomes from DOTC4510 cells and introduced them to WI-38 cells, calculating their growth rates and recording their morphological differences. It was found that with exosomal treatment, WI38 cells grew to a lower cell count, but were larger in size. This information suggests that exosomes have the potential to alter the growth cycle of non-malignant cells, suggesting a possible biological mechanism for wide spread cancer growth.