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Patterned Electro-spun Fibers Capture Exosomes Produced from Single Cells

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Patterned Electro-spun Fibers Capture Exosomes Produced from Single Cells*

Sage Bingaman and Jeffery Chalmers, Ph.D

Abstract

Cancer and its curiosities have been researched throughout the scientific community with little results. Several studies have been unable to use a single treatment to cure the cells as each cancerous cell is unique in its molecular coding, and are often immune to different kinds of treatments.

The purpose of the experiment is to determine whether exosomes in cancer cells can communicate with other cells and create an immunity to treatment. There were multiple steps in the process of attaching cells to an electro-spun fiber sheet and analyzing the exosomes captured. The first step was to take increments of 0.4 ug/ml of biotin to attach a 1-100 dilution of biotinylated anti-CD63, and an APC of anti-CD81 to the sheet. Then, using fluorescent antibodies, we are able track the movement of breast cancer cells and capture the exosomes from the single cells. The transportation of exosomes through multiple cells are thought to have the ability to communicate with another mutated cell to resist the cancer treatment. By acknowledging these cells, it may be possible to isolate them to prevent the proliferation of altered cells. The experiment is ongoing and there are yet to be conclusive results.

KEYWORDS: Cancer; Biotin; Antibody; Exosome

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Cancer and its curiosities have been researched throughout the scientific community with little results. Several studies have been unable to use a single treatment to cure the cells as each cancerous cell is unique in its molecular coding, and are often immune to different kinds of treatments.

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