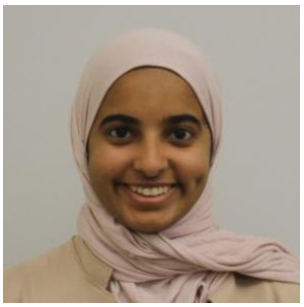


Title: Delineating the Reciprocal Cross-Talks Between Breat Tumor Cells And Fibroblasts Using 3D Co-Culture Environments.

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Recently, three-dimensional (3D) cancer models have been used to mimic the physiological conditions in vivo, as cells in 3D cultures tend to recapitulate those in vivo in terms of cell-cell interaction, metabolism, gene expression, and signaling (1). Breast tumor microenvironment is highly influenced by direct interactions between breast cancer cells, fibroblasts and extracellular matrix (ECM) (2). These direct interactions have shown to trigger the conversion of naïve fibroblasts to Cancer-associated fibroblasts (CAFs). CAFs, comprising up to 80% of the resident fibroblasts in breast tumors, are the predominant cell type in tumor stroma (5). Recent studies suggest a crucial role of CAFs in cancer angiogenesis, initiation, invasion, and metastasis of breast tumors (2-5). Hence, fibroblasts represent a viable and exciting target for cancer therapy. As a result, we created 3D co-cultures consisting of T47D or MCF-7 breast cancer cells and primary fibroblasts (HFF). We evaluated spheroid growth and morphology following incubation of fibroblast spheroids with conditioned medium isolated from tumor spheroids and vice versa. Interestingly, fibroblast spheroids grown in the presence of tumor-derived conditioned medium developed cellular changes related to EMT (epithelial-mesenchymal transition). Moreover, we assessed whether fibroblasts are recruited to already established tumor spheroids and vice versa. Our results also reveal that spheroids formed by tumor cells and fibroblast spheroids established physical contact and merged together over a period of 3 days. This shows, that indeed, there are reciprocal interactions between breast cancer cells and fibroblasts, which render CAFs a viable target for potential therapy.

Biography

Alkaabi is graduating with a Bachelor of Biological Sciences from Carnegie Mellon University in Qatar. She has done two phage genomics projects in her freshmen year to extract and analyze the genome of a novel phage local to Qatar. Then she did a minor project in Cell biology to invesitage the phosphorylation of p38 in MAPK signaling cascade. Finally, she has done a cancer research project supervised by Dr. Nesrine Affara, which inspired her to purse an honor thesis, where she is currently investigating the effect of carotinoids on tumor and fibroblasts spheroids. She has not published a paper yet.

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