Modulating Integrin Expression in Pancreatic Tumor Cells

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Pancreatic Ductal Adenocarcinoma (PDAC) is a common type of pancreatic cancer and is characterized by a extremely high mortality rate. PDAC tumors tend to be extremely stiff, the reason for this is because the fibroblast-like cells release extra cellular matrix proteins in the tumor stroma which in turn stiffens the tumor. This stiff structure of the tumor can promote proliferation and metastasis of the cancer, and it can cause resistance to cancer drugs. In my research, I focused on Integrins, which are receptors for extracellular matrix proteins. I used the CRISPR a/i (activation/interference) system to modulate gene expression in Integrins. I analyzed the upregulation/downregulation of the modulation of gene expression by looking at cell morphology, proliferation, and other cellular mechanisms. My project provides insight on the physical/mechanical aspects of tumor formation and serves as a study to provide possible therapeutic intervention.

Awards Won: