



Spatial genomics reveals a high number and specific location of B cells in the pancreatic ductal adenocarcinoma (PDAC) microenvironment of long-term survivors

Background

Only 10% of pancreatic ductal adenocarcinoma (PDAC) patients survive longer than five years. Factors underlining long-term survivorship in PDAC are essential for the development of new treatments and currently not well understood.

Research Questions

- What are the key players in the tumor immune microenvironment (TIME) associated with long-term survivorship in PDAC patients?
- What is the immune landscape of gene expression profiles and protein spatial infiltration that is associated with survivorship in PDAC patients?
- Is there information to be gleaned from long term survivors that could aid in future immunotherapy treatments?

Results & Conclusions

- Beginning research utilizing the nCounter Analysis System for bulk gene expression provided an initial hypothesis that long-term survivors have over-expression of B cell related genes and higher B cell scoring.
- Utilizing GeoMx Spatial profiling confirmed long-term survivors had significantly higher infiltration of B-cells located in the stroma and the tumor itself.
- Examining specific ROIs with GeoMx further showed expression of various markers supporting memory B cells, dendritic cells or antigen presenting cells. Additional markers associated with increased blood vessel formation were also identified.
- Utilizing both nCounter and GeoMx provide a powerful combination for hypothesis driven multi-omic research providing actionable results.

Experimental Setup

Instrument	nCounter®, GeoMx® with nCounter® readout
Sample Type	FF human tumor tissue samples, FFPE for GeoMx® validation
Tissue Type	Long term-short term survival, treatment naïve/surgery
Assay	PanCancer Immune Cell Profiling, Protein Immune Cell Profiling Core
Analyte	RNA, Protein

Schematic Overview of the Study

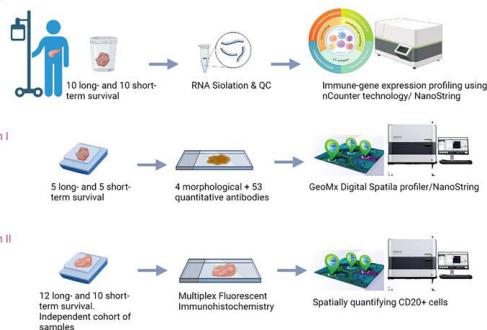


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"This is the first comprehensive study that connects the immune landscape of gene expression profiles and protein spatial infiltration with the survivorship of PDAC patients. We found a higher number and a specific location of B cells in TME of long-term survivors which emphasizes the importance of B cells and B cell-based therapy for future personalized immunotherapy in PDAC patients."

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