Gene Expression Signatures of Intratumoral T cells as Biomarkers of Clinical Response and Increased Survival with Immune Checkpoint Inhibitor Therapy in Bladder Cancer

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TECHNOLOGY DESCRIPTION

UCSF investigators have identified gene signatures for both CD4+ T cells and CD8+ T cells that are associated with improved responses and survival with Anti-PD-L1 therapy in bladder cancer. The technology serves to benefit patient outcomes by determining the potential response to Anti-PD-L1 therapy prior to beginning treatment. Multiple genes and composite gene signatures were identified through single cell RNA sequencing of both CD4+ T cells and CD8+ T cells. Further, the signatures were shown to be predictive of anti-PD-L1 treatment response in a separate data set comprised of 168 metastatic bladder cancer patients. This technology has the potential to improve upon previous gene expression profiles by providing more comprehensive characterization of the heterogenous T cell population within the tumor microenvironment.

ADVANTAGES

- Previously undescribed signature derived from single cell studies in cancer patients
- Characterizes clinically relevant subsets of tumor infiltrating T lymphocytes (TILs) beyond canonical cytotoxic and exhausted phenotypes
- Identifies several novel cytotoxic CD4+ populations
- Signature capable of being obtained through multiple commercially available RNA sequencing platforms
- Identified T cell receptors that can be used to create cellular therapies for bladder cancer

RELATED MATERIALS

- Intratumoral CD4+ T Cells Mediate Anti-tumor Cytotoxicity in Human Bladder Cancer - 06/25/2020

PATENT STATUS

Country	Type	Number	Dated	Case
United States Of America	Published Application	20220290247	09/15/2022	2020-028

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OTHER INFORMATION

KEYWORDS

Intratumoral T Cells, Biomarkers, Immune Checkpoint Inhibitor, Bladder Cancer, Tumor Infiltrating Lymphocytes, Gene Signature, T cell Receptors

CATEGORIZED AS

- Medical
  - Diagnostics
  - Disease: Cancer
  - Therapeutics

RELATED CASES

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