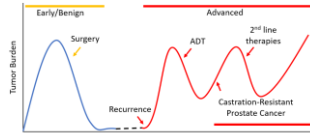


Defining Cellular Population Dynamics in Advanced Prostate Cancer using Single-cell RNA Sequencing

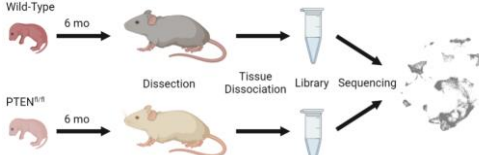
Alexandre Germanos^{1,2}, Sonali Arora¹, Robert Amezcua³, Erica Goddard¹, Raphael Gottardo³, Andrew Hsieh¹
¹Division of Human Biology, Fred Hutchinson Cancer Research Center. ²University of Washington Molecular and Cellular Biology Program ³Division of Vaccine and infectious Diseases, Fred Hutchinson Cancer Research Center.

Advanced Prostate Cancer is a Leading Cause of Cancer-Related Death in Men

Main treatment is androgen deprivation therapy (ADT)
 Acquired resistance is a major obstacle and has no cure

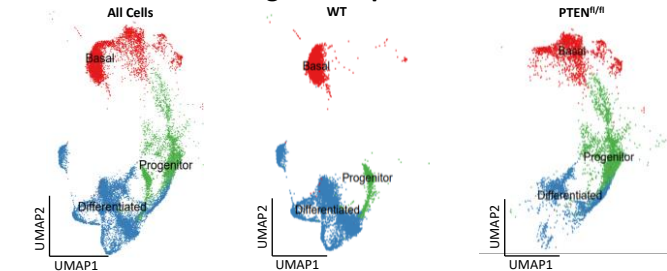


Goal: Use PTEN^{fl/fl} Mouse Model to Define How Cancer Modulates Cellular Architecture of the Prostate

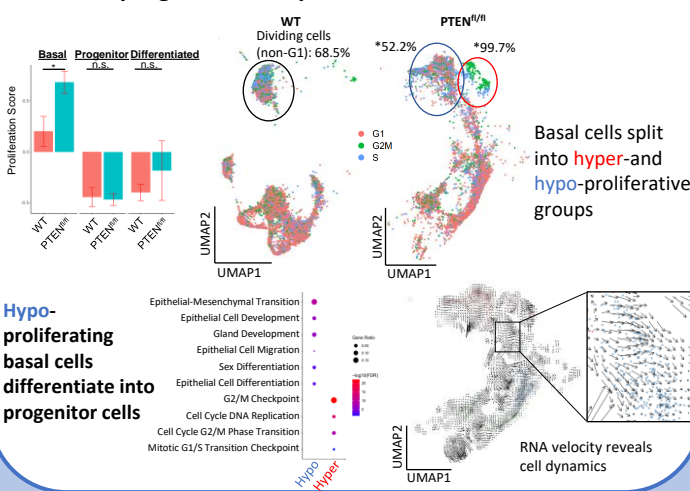


Single-cell RNAseq can provide comprehensive view of the prostate during tumorigenesis

Cancer Increases Progenitor Epithelial Cell Abundance

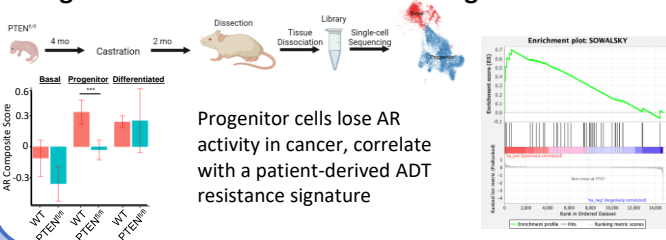


Do progenitor cells proliferate more in cancer?



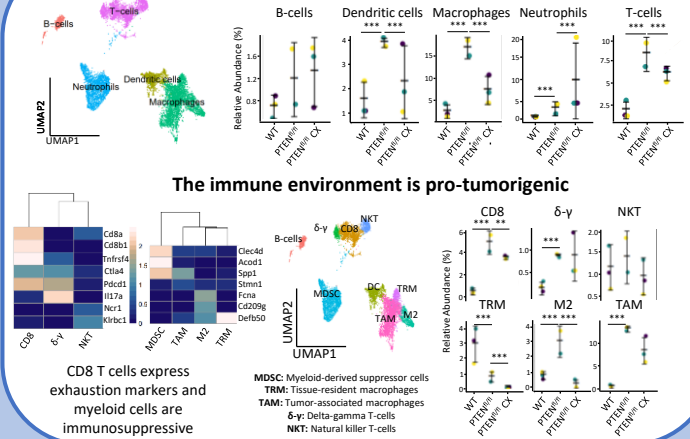
Hypo-proliferating basal cells differentiate into progenitor cells

Progenitor Cells Are Primed for Androgen-Low Survival



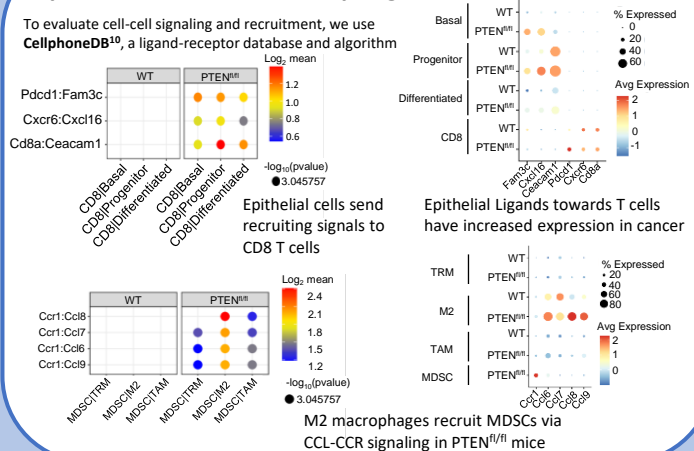
Progenitor cells lose AR activity in cancer, correlate with a patient-derived ADT resistance signature

Cancer and Castration Remodel the Immune Environment

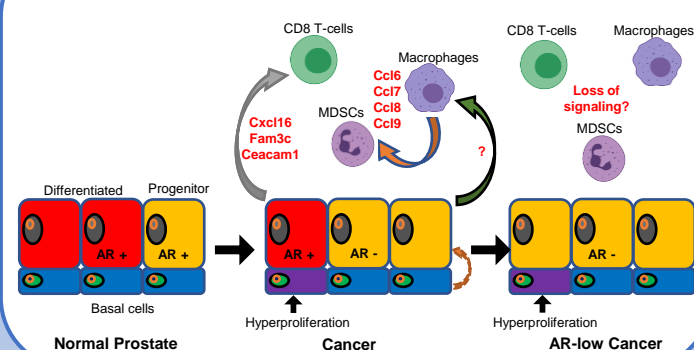


The immune environment is pro-tumorigenic

Epithelial Cells and Macrophages Recruit Immune Cells



Model of Prostate Environment in Cancer and Castration



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