ENETS EUROPEAN NEUROENDOCRINE TUMOR SOCIETY

Abstract #4061 : Dissecting the single-cell transcriptome network underlying thymic neuroendocrine tumor and thymus non-malignant tissues

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Background/Methods:

- Thymic neuroendocrine tumor (TNET) is the rarest subtype among thymic epithelial tumors and NET. Limited understanding of tumor microenvironment (TME) of TNET contributes to the lack of treatment options for this rare tumor type.
- We performed single-cell RNA sequencing (scRNA) analysis on three tumor specimens and their corresponding non-tumor tissues. Additionally, scRNA data of normal thymic neuroendocrine (NE) cells were retrieved from publicly available databases.

Results/Graphs/Data (1):

- After quality filtering, 38,602 cells underwent analysis, categorized into seven subgroups revealing **a notable deficiency of immune cells and enrichment of fibroblasts** within the tumor (**Figure 1**).

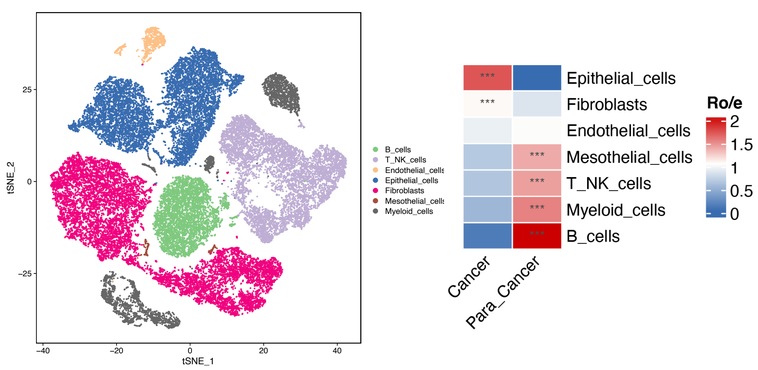

Figure1. Distribution of the seven main cell types in tumor and the adjacent non-cancerous tissue

Conclusions/Main Findings

- The TME in TNET exhibits immune suppression and a heightened proliferative state in tumor cells.
- The interplay between tumor cells, immune cells and CAF potentially holds a pivotal role in driving these traits.

Emphasise Important Words

Thymic neuroendocrine tumor, Single-cell RNA sequencing, Tumor microenvironment, Tumor-associated fibroblasts

Declaration:
The authors have no direct conflicts of interest to declare with regards to this study.

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Results/Graphs/Data (2):

- Trajectory analysis and functional scoring revealed an **abundance of naive CD8+ T cells within the tumor**, while dendritic cells and macrophages exhibited no significant differences between tumors and non-tumor tissues(**Figure 2**).

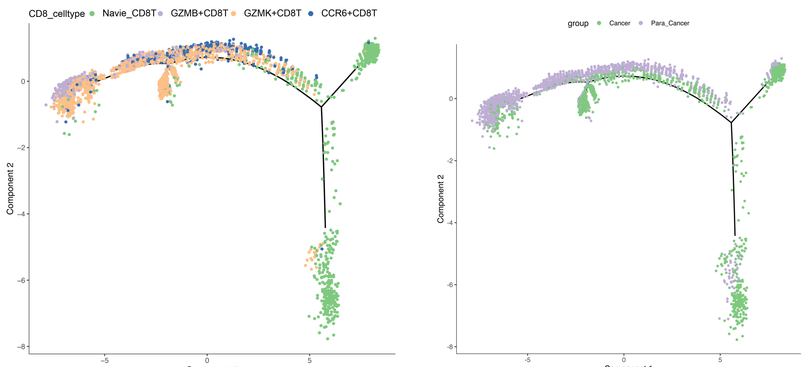

Figure2. CD8 T cells transformation and distribution

- Transitioning from **normal fibroblasts (NF) to tumor-associated fibroblasts (CAF)** demonstrated an upregulation of pathways related to **immune regulation and vascular endothelial cell differentiation** (**Figure 3**).

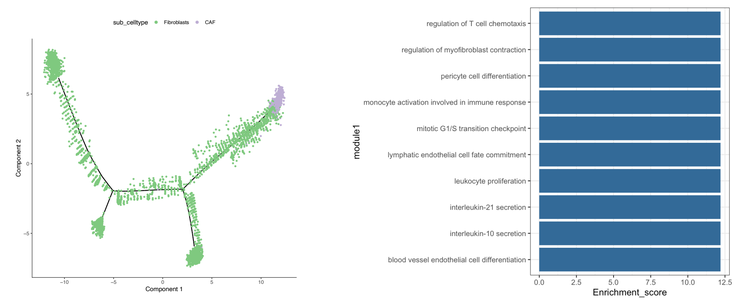

Figure3. Fibroblasts transformation and function

Future Directions for Research:

- Exploring the mechanisms of CAF in immune suppression and angiogenesis.
- Validation in a larger sample size of TNET patients and in in vitro and in vivo models.