Abstract #4066 : Immune landscape of small intestinal neuroendocrine tumor at single-cell level

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Background/Methods:

- Small intestinal neuroendocrine tumor (SINET) is the most common malignant tumor of the small intestine. Despite its prominence, a full understanding of the immune landscape in SINET remains elusive.
- Five matched samples underwent single-cell RNA sequencing (scRNA), which was complemented by integrating one publicly available SI-NET scRNA data.

Results/Graphs/Data (1):

- Following quality filtering, 22,482 immune cells were included. T and NK cells were divided into 17 subgroups, B cells into 4, and myeloid cells into 10. Within the tumor, **CD4 T cells, B cells, mast cells and macrophages were significantly enriched, while NK cells, CD8 T cells, DC, neutrophils, and monocytes were notably deficient**. (**Figure 1**).

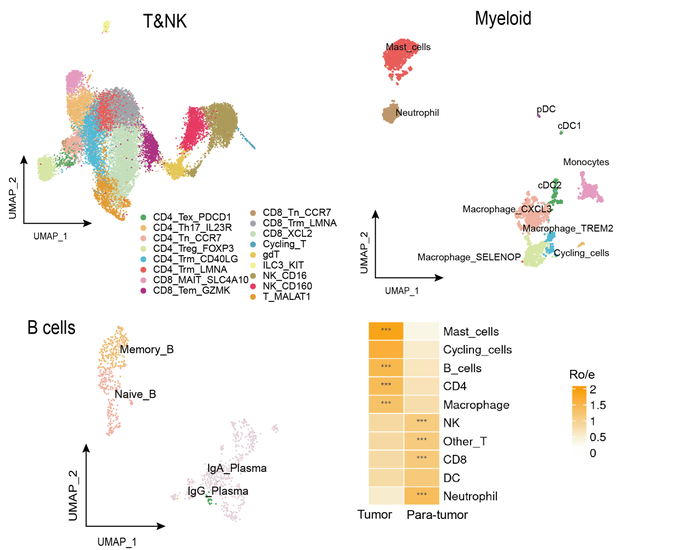

Figure1. Distribution of immune cell types in tumor and the adjacent non-cancerous tissue

Conclusions/Main Findings

- SINET manifests an immunosuppressive landscape wherein TGFB1 secreted by EC and PVL within tumor may play a crucial role.

Emphasise Important Words

Small intestinal neuroendocrine tumor, Single-cell RNA sequencing, Immunosuppressive, CD8 T cells, TGFB1

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

Results/Graphs/Data (2):

- TCR analysis revealed **significantly less clonal expansion of T cells within the tumor** compared to those outside, suggesting insufficient activation (**Figure 2**).

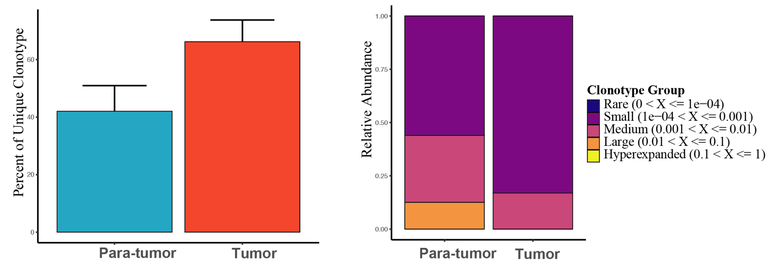

Figure2. Conal expansion of T cells

- Endothelial cells (EC) and perivascular cells (PVL) enriched within the tumor exhibited significantly elevated expression of TGFB1. Among the intra-tumoral immune cells, **CD8 T cells were most responsive to TGFB1 according to Cytosig analysis.** EC and PVL might inhibit the activation of CD8 T cells through TGFB1-TGFBR1 interaction (**Figure 3**).

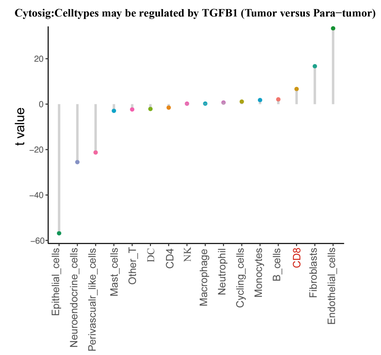

Figure3. Response scores to TGFB1 of different cell types

Future Directions for Research:

- Investigating the potential mechanisms by which TGFB1 inhibits the activity of CD8 T cells.
- Validation in a larger sample size of SINET patients and in in vitro and in vivo models.

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