

CHARACTERIZATION OF ALTERED IMMUNITY IN ANAPLASTIC THYROID CANCER

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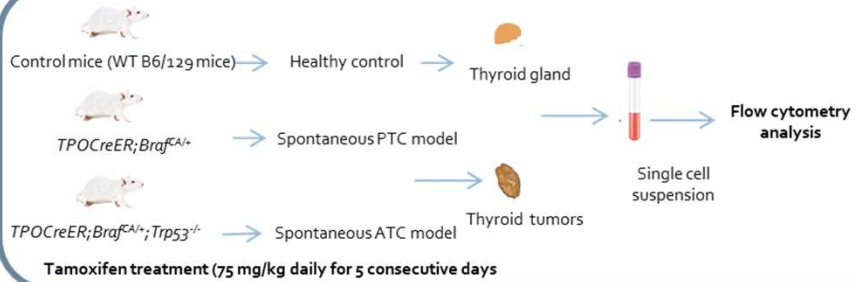
Department of Immunology

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Results

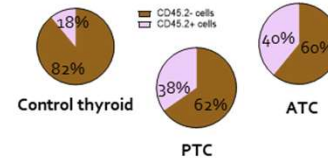
Experimental design



Cellular composition of ATC tumors

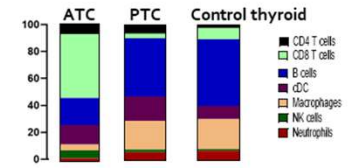
Hematopoietic cell distribution in ATC and PTC tumors compared to thyroid gland

- Higher infiltration of lymphoid immune cells in ATC and PTC compared to normal thyroid gland



Percentages of hematopoietic (CD45.2+) and non-hematopoietic (CD45.2-) cells among total live cells

Immune cell composition in thyroid tumors

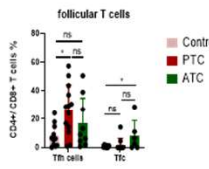


Percentage of immune cells among hematopoietic cells (CD45+)

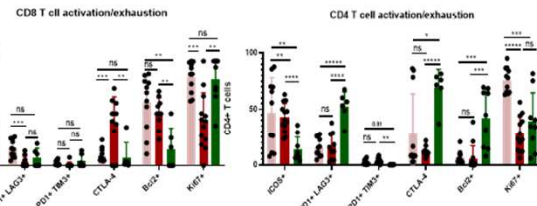
Immune microenvironment in ATC

Lymphocyte subsets

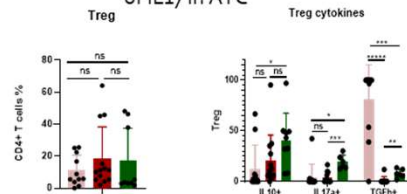
- Higher infiltration of follicular CD8+ T cells (PD1+ CXCR5+) in ATC compared to PTC and normal glands



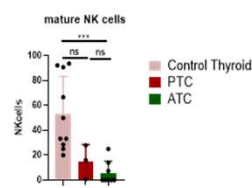
- Exhaustion markers (PD1+, LAG3+ and CTLA4+) expression is increased in CD4+ T cells in ATC



- T reg cells produce higher levels of IL17 in ATC

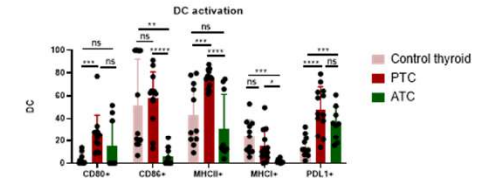
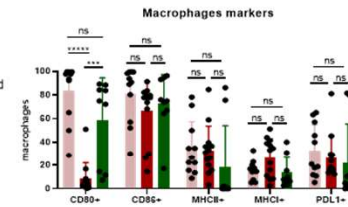


- Mature NK cells levels are decreased in ATC

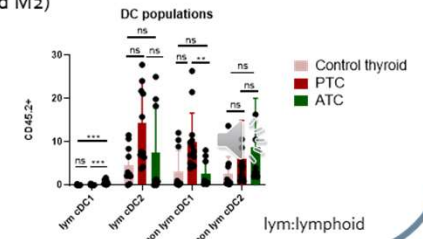
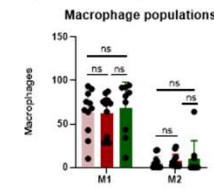


Myeloid subsets

- Myeloid cells expressed decreased levels of T-cell activation molecules and increased levels of the suppressor factor PDL1



- ATC enriched in suppressor myeloid cells (cDC2 and M2)



Summary

- ATC tumor microenvironment is highly enriched with exhausted CD4+ T cells expressing PD-1, LAG3 and CTLA-4
- ATC tumors are infiltrated with immunosuppressive myeloid cells, cDC2 and M2 macrophages, expressing high levels of PDL1
- Treg cells changed phenotype towards inflammatory Th17 cells in ATC

Future directions

- Assess the contribution of immune cells to ATC pathogenesis
- Evaluate the efficacy of cell-targeted and immune checkpoint blockade therapy in ATC model



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