

Circulating CD8+ mucosal-associated invariant T cells: a novel potential biomarker of ongoing anti-PD-1 responses in melanoma patients



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Background

- Immune-checkpoint inhibitors (ICIs) treat cancers, including melanoma.
- Mucosal-associated invariant T (MAIT) cells infiltrate melanoma tumors.
- Circulating MAIT cells are significantly decreased in untreated melanoma patients in a stage-dependent manner.
- Circulating MAIT cells return to normal levels in patients responding to anti-PD-1 therapies.

Hypothesis

- MAIT cells are a biomarker of ongoing anti-PD-1 clinical responses in melanoma patients.

Methods

- 78 melanoma patients and 11 healthy donors (HD) recruited at CU Cutaneous Oncology Clinic
- Study approved by COMIRB
- Patients provided written informed consent
- Peripheral blood mononuclear cells (PBMCs) were isolated and MAITs were fluorescently labelled
- Samples were analyzed by flow cytometer and data was analyzed using FlowJo software

Results

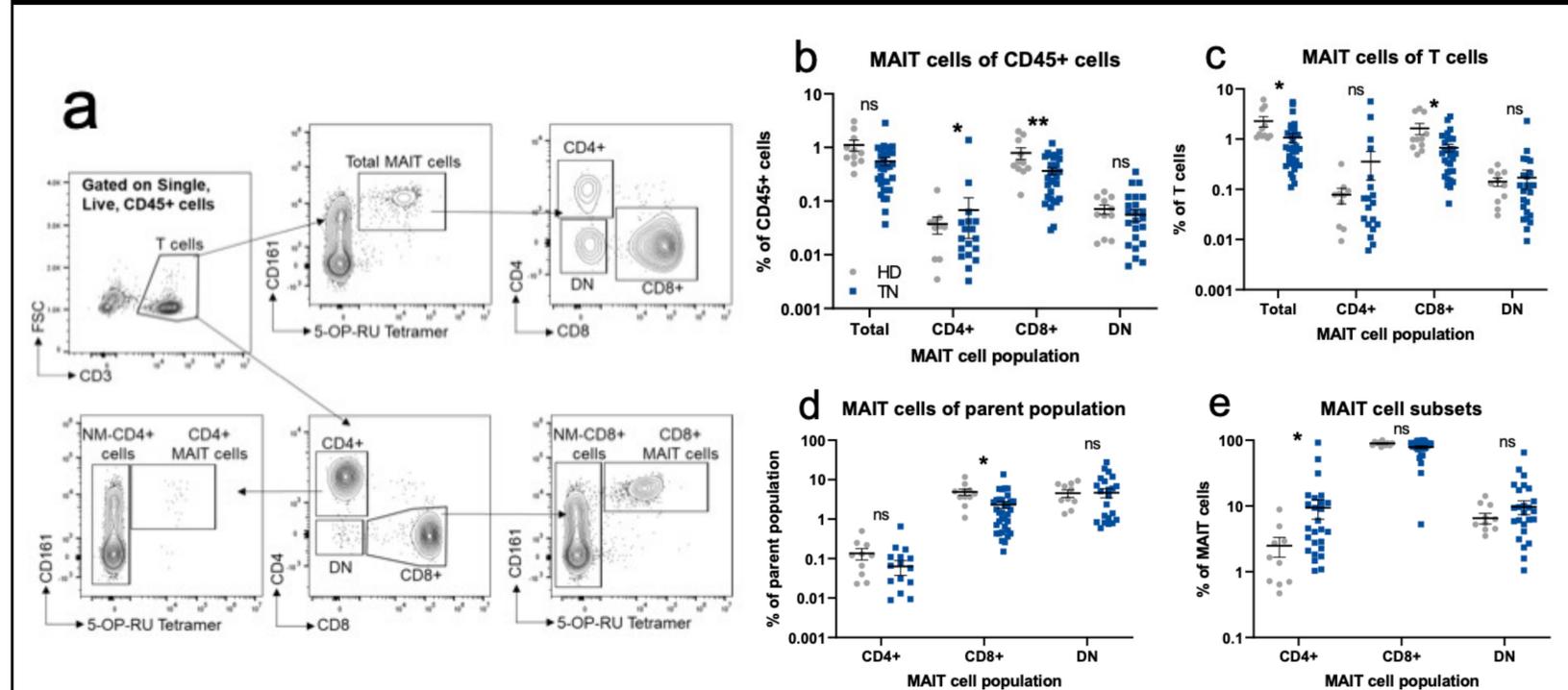


Figure 1. MAIT cells are decreased in the circulation of melanoma patients. (a) Example flow cytometric gating strategy to identify MAIT cell subsets in peripheral blood. Comparisons of MAIT cell subsets as a fraction of CD45+ cells (b), total T cells (c), parent T cell population (d), and of MAIT (e) in healthy donors (HD, n = 11) and treatment naïve (TN, n = 33) melanoma patients. Double negative (DN), * p < 0.05.

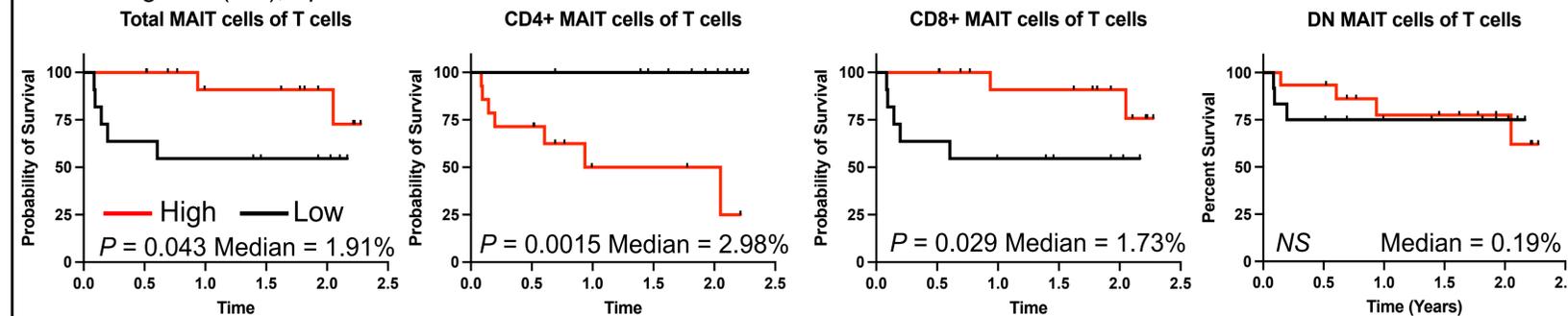


Figure 2. The frequency of CD8+ but not CD4+ MAIT cells is positively associated with improved overall survival in melanoma patients. Kaplan-Meier curves comparing the survival of stage IV melanoma patients based on the median frequency of MAIT cells. Response to ICIs was characterized using RECIST1.1 criteria with responders identified as complete response (CR) or partial response (PR), while non-responders were identified as stable disease (SD) or progressive disease (PD).

Conclusions

- MAIT cells are reduced in the circulation of melanoma patients
- The proportion of CD4+ MAIT cells is increased in the circulation of melanoma patients
- MAIT cells are positively associated with clinical responses to ICIs
- High frequencies of CD8+ MAIT cells are associated with improved overall survival
- High frequencies of CD4+ MAIT cells are associated with worse overall survival

Disclosures

- No conflicts of interest to declare.

References

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