



FL

## Mass cytometry reveals that specific intratumoral CD4+ T cell subsets correlate with patient survival in FL

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T cells play a crucial role in how the body fights follicular lymphoma (FL) according to the results of a study led by [Mayo Clinic](#) hematologists [Zhi Zhang Yang](#) and [Stephen Ansell](#), that was published in [Cell Reports](#). [Dr. Yang](#) and his colleagues were interested in understanding why some patients with FL fare better than others with the disease.

### Key findings

- Using mass cytometry, the team identified at least 12 subsets of intratumoral CD4+ T cells, 3 of which were unique to FL biopsies versus control tissues.
- Of these subsets, the frequency of naive T cells correlated with improved patient survival
- Although total PD-1+ T cell numbers were not associated with patient outcome, specific PD-1+T cell subpopulations were associated with poor survival
- Intratumoral T cells lacking CD27 and CD28 co-stimulatory receptor expression were enriched in FL and correlated with inferior patient outcomes
- In vitro models revealed that CD70+ lymphoma cells played an important role in expanding this population. Taken together, the team's mass cytometry results identified CD4+ memory T cell populations that are poorly functional due to loss of co-stimulatory receptor expression and are associated with inferior survival in FL

Taken together, this study found that patients who had a poor immune response to the disease exhibited a reduction in costimulatory receptors on their T cells. "The presence of costimulatory receptors on the cell surface allows the immune system to better recognize and attack cancer cells," says [Dr. Yang](#). "We also found that, among patients with follicular lymphoma, those whose T cells were lacking costimulatory receptors experienced significantly shorter survival than patients whose T cells exhibited costimulatory receptors."

[Dr. Yang](#) says that, while this research is preclinical and preliminary, it eventually may have clinical implications. "If we can implement a strategy to restore the expression of costimulatory receptors in patients with this subpopulation of T cells, we may be able to develop a new therapy for some patients with follicular lymphoma."

### Reference

Yang Z.Z. *et al.* Mass Cytometry Analysis Reveals that Specific Intratumoral CD4+ T Cell Subsets Correlate with Patient Survival in Follicular Lymphoma. *Cell Reports*. 2019 Feb 19; 26: 2178–2193; DOI: [10.1016/j.celrep.2019.01.085](https://doi.org/10.1016/j.celrep.2019.01.085)

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