

Immunophenotypic Patterns in Cutaneous T-Cell Lymphoma: A Single-Center Retrospective Review

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Abstract

Cutaneous T-cell lymphoma (CTCL) is diagnosed through clinicopathologic correlation, since no single immunophenotypic marker is diagnostic. In a retrospective analysis of 273 CTCL patients at UVA, loss of CD7 was the most common abnormality, followed by loss of CD26 and CD5, alongside elevated CD4:CD8 ratios. These findings support the use of characteristic immunophenotypic patterns in the evaluation of CTCL.

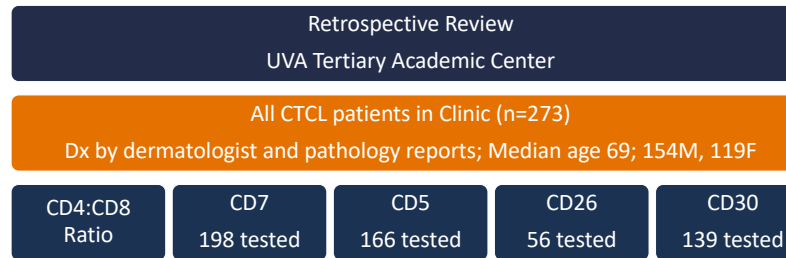
Background and Introduction

- Early-stage mycosis fungoides can mimic benign dermatoses (e.g. eczema) on both clinical and histological grounds, so immunophenotyping is used to help separate the two
- CD7 loss is the classic marker, but the evidence is small-scale
 - Aslani et al. (2008) showed every mycosis fungoides case (15 patients) lacked CD7 in epidermotropic cells, while benign dermatoses could show low CD7 but rarely as low as patch-stage MF ($p = 0.01$)
 - Gulin et al. (2025) showed loss of CD7 in 72% of MF patients from a cohort of 83 patients with stage IA-IIA MF diagnosed between 2003 and 2012
- The frequency and co-occurrence of these markers in a large, real-world CTCL cohort from a single tertiary center remains incompletely characterized.

Objectives

- Characterize the frequency and patterns of commonly used immunophenotypic biomarkers in CTCL
- Describe these findings in a cohort from the University of Virginia, a tertiary academic center

Methods



Analysis included measuring the frequency of marker loss or expression among patients tested for each marker, plus co-occurrence of concurrent loss in patients tested for multiple markers.

Results

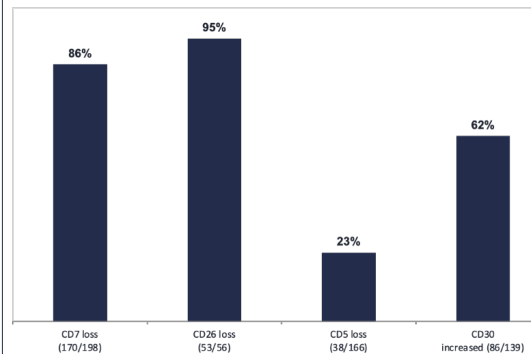


Figure 1: Frequency of Cell Marker Loss or Presence in CTCL Population

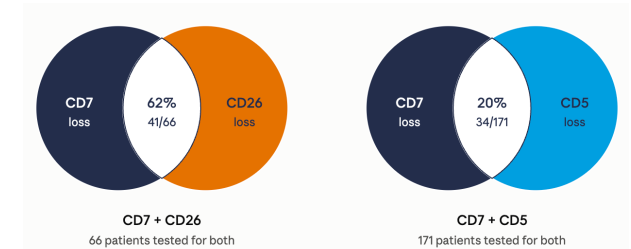


Figure 2: Venn Diagram of Concurrent Loss of Cell Markers

- CD4:CD8 Ratio: Median 4.5 (IQR 2-10)
- Loss of CD7 was the most frequently observed immunophenotypic abnormality (170 patients)
- CD26 loss had the highest rate among patients tested (94.6%)

Future Directions

- Correlate immunophenotypic patterns with disease stage, subtype, and clinical outcomes
- Assess whether specific marker combinations have diagnostic or prognostic value
- Compare findings with other institutions through multi-center studies

References

Sari Aslani F, et al. CD7 expression in differentiating mycosis fungoides from benign cutaneous lymphocytic infiltrates. *Iran J Med Sci*. 2008;33(3):144-149.
 Jerkovic Gulin S, Illic I, Gulin D, Kravvas G, Ceovic R. Prognostic value of immunohistochemical T-cell marker loss in early-stage mycosis fungoides: a single-center cohort study. *Dermatopathology*. 2025;12(3):29.
 doi:10.3390/dermatopathology12030029

Acknowledgements

UVA Summer Medical Research Internship and UVA Department of Dermatology