

# Tumor micro-environment shift induced by topical chlormethine in early-stage mycosis fungoides by flow cytometry of interstitial fluid

See all  
CHDR posters:



S.S. Wind<sup>1,3</sup>, R. Rijneveld<sup>1</sup>, W. Grievink<sup>1,5</sup>, K.D. Quint<sup>2</sup>, L.J. Bruijninx<sup>1</sup>, T. van Kuijken<sup>1</sup>, I. Milton<sup>1</sup>, L. de Strooper<sup>3</sup>, S. Eifler<sup>3</sup>, V. Stimamiglio<sup>4</sup>, A. Alonzi<sup>4</sup>, M.H. Vermeer<sup>2</sup>, R. Rissmann<sup>1,2,5</sup>

<sup>1</sup> Centre for Human Drug Research, Leiden, The Netherlands, <sup>2</sup> Leiden University Medical Centre, Leiden, The Netherlands, <sup>3</sup> Recordati Rare Diseases, Puteaux, France, <sup>4</sup> Helsinn Healthcare SA, Lugano, Switzerland, <sup>5</sup> Leiden Academic Centre for Drug Research, Leiden, The Netherlands

## Introduction

Early stages of Mycosis Fungoides (MF) can be treated effectively with topical chlormethine. However, insight into changes in the tumor-micro environment (TME) during treatment and how these changes contribute to therapeutic success is limited.

## Aim

To characterize the TME of MF on a cellular level by suction blister fluid analysis.

## Methods

Exploratory, single-centre, deep phenotyping, two-part study to describe MF characteristics and explore novel biomarkers.

- 21 early-stage (Ia/Ib) MF patients
- Interventional part: 16 weeks of chlormethine gel 0,016%, thrice weekly in week 0-4 and once daily in week 4-16.
- Collection suction blisters: pre- treatment from LS and NL skin, after 16 weeks of treatment from LS skin

## Results

After 16 weeks of treatment with chlormethine

- Composite Assessment of Index Lesion Severity (CAILS) score ↓
- Modified CAILS score (mCAILS) ↓
- Modified Severity-Weighted Assessment Tool score (mSWAT) ↓
- CD4<sup>+</sup>CD26<sup>-</sup> aberrant T cells (p<0.001), CD3<sup>+</sup>8<sup>+</sup> T lymphocytes (p<0.05), activated CD8<sup>+</sup>HLA-DR<sup>+</sup> cytotoxic lymphocytes (p<0.01) and Tregs (p<0.001) ↓

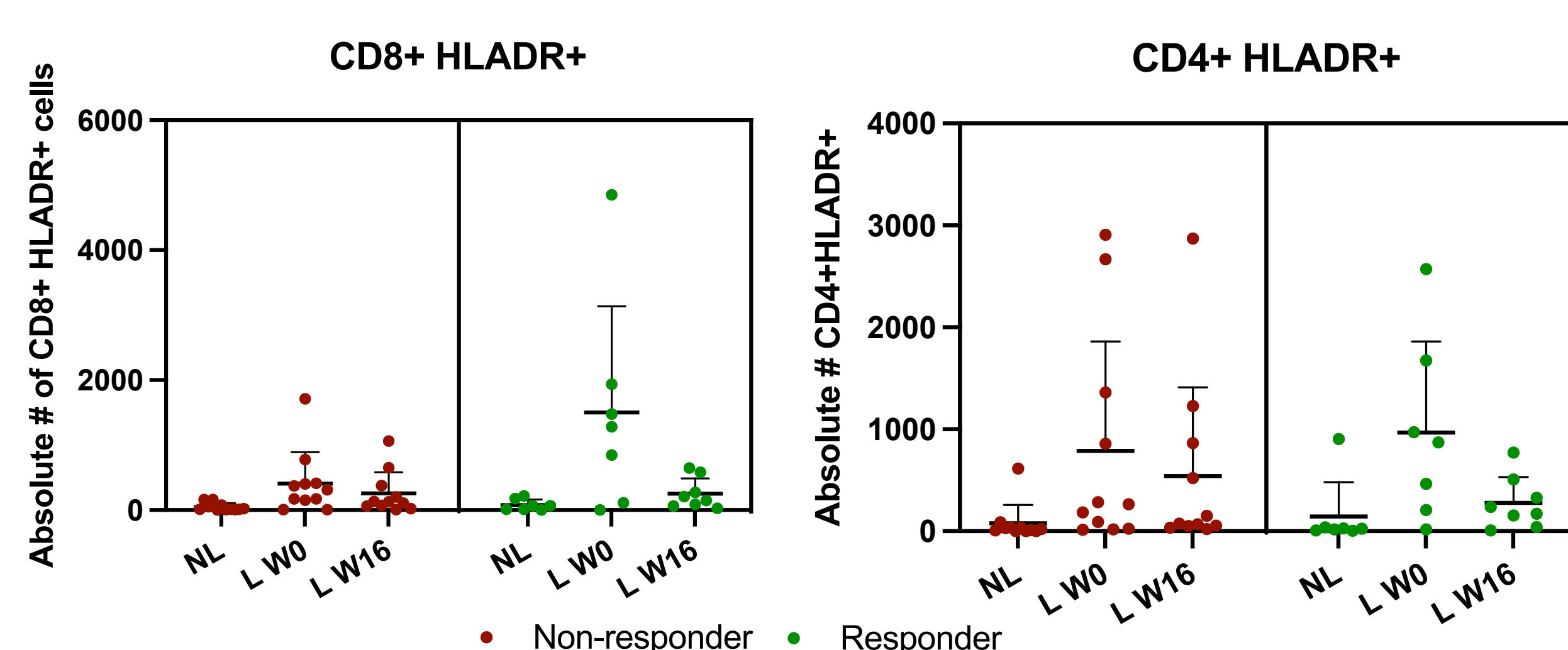


Figure 2: CD4<sup>+</sup> HLADR<sup>+</sup> T-cell count and CD8<sup>+</sup> HLADR<sup>+</sup> T-cell count in blister exudate from non-responders and responders to topical chlormethine treatment. Absolute cell count of CD4<sup>+</sup> HLADR<sup>+</sup> T-cells and CD8<sup>+</sup> HLADR<sup>+</sup> T-cells in blister fluid from non-lesional skin, lesional skin on week 0 and lesional skin on week 16 in non-responders and responders to treatment. All 21 MF patients were treated with 0,016% topical chlormethine.

## Conclusions

- Positive feasibility of real time analysis of suction blister fluid to investigate MF TME
- CD8<sup>+</sup>HLA-DR<sup>+</sup> cytotoxic T cells and Tregs prominent role in MF TME
- Chlormethine gel results in less tumor cell-prone micro-environment in early stage MF

Table 1. Demographics

	Overall (N=21)
<b>Sex</b>	
Female	9 (42.9%)
Male	12 (57.1%)
<b>Race</b>	
Asian	1 (4.8%)
Mixed	2 (9.5%)
White	18 (85.7%)
<b>Age (years)</b>	
Mean (SD)	52.9 (14.3)
Median [Min, Max]	55.0 [19.0, 72.0]
<b>CAILS Score Lesion 1</b>	
Mean (SD)	15.7 (3.17)
Median [Min, Max]	16.0 [11.0, 22.0]
<b>mCAILS Score Lesion 1</b>	
Mean (SD)	14.2 (2.55)
Median [Min, Max]	14.0 [9.00, 19.0]
<b>mSWAT Score</b>	
Mean (SD)	10.3 (7.52)
Median [Min, Max]	9.00 [3.00, 35.0]

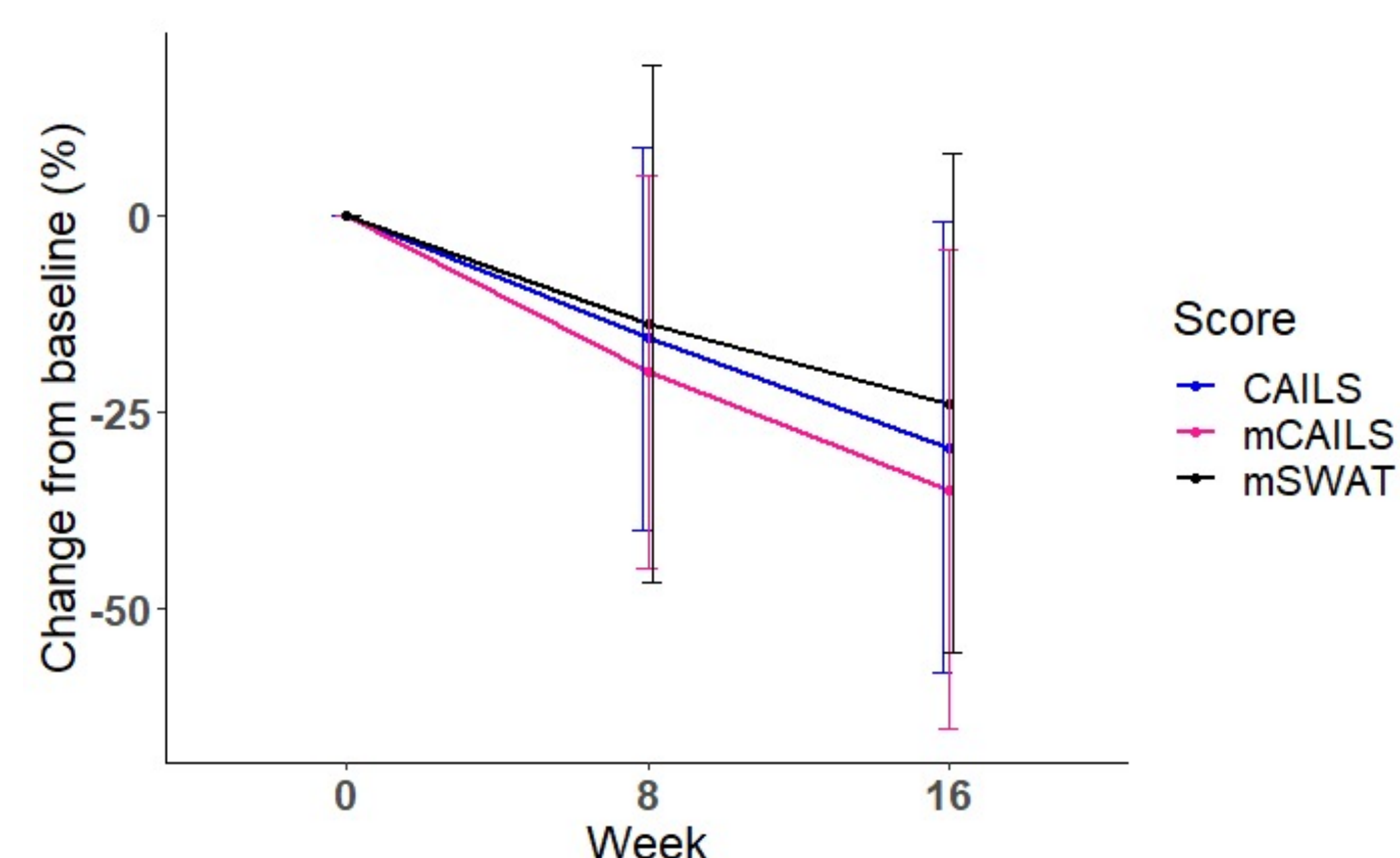


Figure 1. Change from baseline over time of Composite Assessment of Index Lesion Severity (CAILS) score, Modified CAILS score (mCAILS) and Modified Severity-Weighted Assessment Tool score (mSWAT) in early-stage MF patients treated with topical chlormethine. All 21 MF patients were treated with 0,016% topical chlormethine.

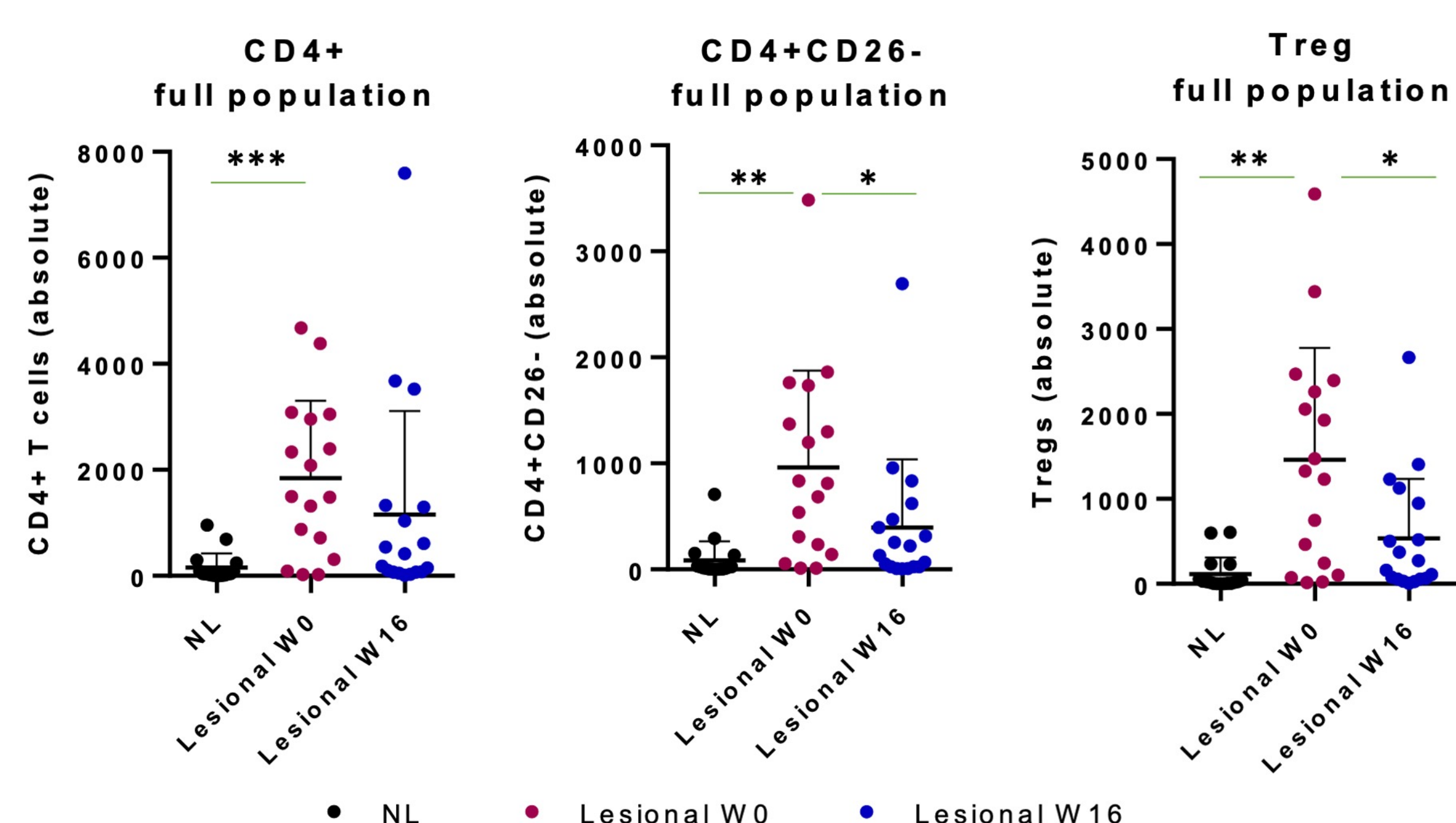


Figure 3: CD4<sup>+</sup> T-cell count, CD4<sup>+</sup>CD26<sup>-</sup> T-cell count and Tregs count in blister fluid from non-lesional skin, lesional skin on week 0 and lesional skin on week 16. Absolute cell count of CD4<sup>+</sup> T-cells, CD4<sup>+</sup>CD26<sup>-</sup> and Tregs in 21 MF patients.

