

A negative type -1 interferon surrogate biomarker SIGLEC-1 rules out SLE in suspected cases.

PRESENTER:

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BACKGROUND:

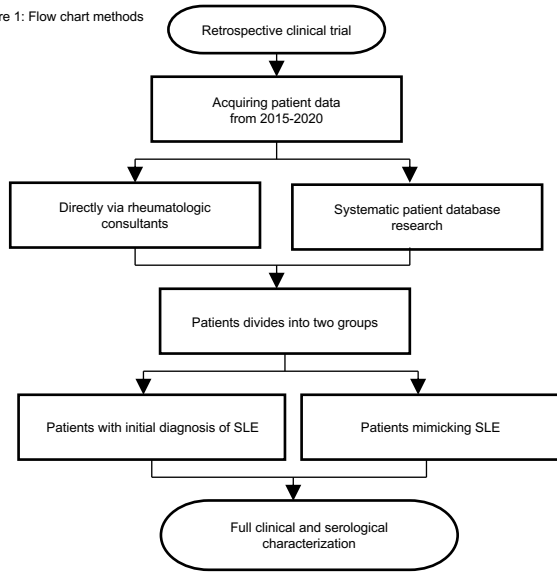
Type-1 interferon plays an important role in the pathogenesis of systemic lupus erythematosus (SLE). Nevertheless, the distribution and magnitude of increased interferon activity among patients during onset of the disease is unknown.

OBJECTIVE:

To evaluate the diagnostic utility of the type-1 interferon surrogate biomarker SIGLEC-1 in SLE Patients.

METHODS:

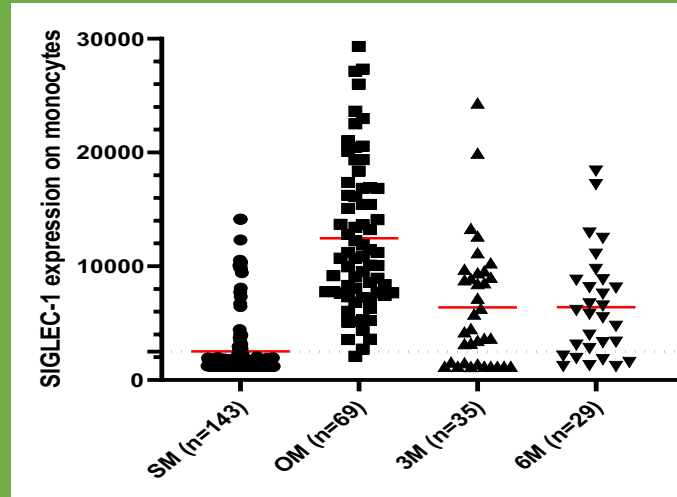
Figure 1: Flow chart methods



- Inclusion criteria: Meet the EULAR/ACR 2019 classification criteria OR no SLE was confirmed. [1]
- Exclusion criteria: Prednisolone dose >100 mg/d
- SIGLEC-1 measurement by fluorescence activated cell sorting
- Calculation of diagnostic performance parameters (e.g. Sensitivity and Specificity)

Negative interferon biomarker SIGLEC-1 rules out SLE

Figure 3: Descriptive statistics showing patients and SIGLEC-1 values

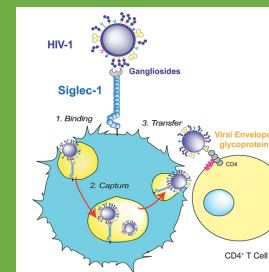


SM (SLE Mimicking patients), OM (SLE initial diagnosis, patients zero point), 3M (SLE initial diagnosis, patients after 3 months), 6M (SLE initial diagnosis, patients after 6 months). Threshold <2500. Red Line: Mean.

SIGLEC-1:

Syn.: sialic acid-binding immunoglobulin-like lectin -1
 → Type I interferon induced and regulated adhesion molecule

Figure 2: Showing an example of a blood monocyte expressing SIGLEC-1. HIV-1 and exosome targeting to Siglec-1. [2]



RESULTS:

Table 1: Patient characteristics and demographics

	SLE Mimicking n=143	SLE n=69
Sex (f/m)	127/16 (8:1)	59/10 (6:1)
Age (years median, range)	38 (30-45)	34 (25.5-45)
Therapy naive (%)	90.91	55.07
SIGLEC-1 Expression on monocytes positive >2500 (median, range)	1347 (1200-1959)	10901 (7651-16844)
SLEDAI-2K (median, range)	not documented	8 (4.75-12.25)

[3]

- 69 of 212 patients fulfilled the EULAR/ACR 2019 classification criteria for SLE. 68 of 69 SLE patients had elevated SIGLEC-1 values. [1]
- SLE was not confirmed in 143 patients, 27 of whom had increased SIGLEC-1 values.
- The 143 non-SLE patients included 71 with no rheumatic disease, 60 with another rheumatic disease and 12 with a "non-rheumatic" autoimmune disease (e.g. Hashimoto thyroiditis).
- SIGLEC-1 is significantly higher expressed in SLE than in SLE mimicking patients. (p<0.0001, Mann-Whitney test)

Table 2: Diagnostic calculations of SIGLEC-1

Bio-marker	Sensitivity	Specificity	NPV	PPV
SIGLEC-1	0,986	0,811	99,14 %	71,57%

NPV= negative predictive value, PPV= positive predictive value

CONCLUSION AND DISCUSSION:

Our study shows that type -1 interferon activity is a hallmark at the onset of the disease and that the interferon biomarker SIGLEC-1 is powerful to rule out SLE.

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Ref.:

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