A COMPARATIVE STUDY OF MICROBLOT-ARRAY (MBA) WITH CONVENTIONAL ROUTINE METHODS FOR THE DETECTION OF ANTIBODIES ASSOCIATED WITH SLE AND SCL IN CZECH POPULATION

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Main goals

1) Assess MBA's diagnostic potential for ANA diagnostics
2) Determine correlations among different laboratory routine methods
3) Validate result correlations with immunofluorescence (IFA) patterns
4) Monitor antigen distribution in SARD

Introduction

Autoimmune diseases (AIDs) include a wide range of disorders requiring multiple antibody tests for the diagnostics. Routine ANA tests (IFA, BLOT) have limitations in efficiency (antigens), sample volume, and accuracy. MBA ANA can analyze 44 markers simultaneously, monitor antibody levels, and provide insights into specific AIDs.

Samples and methods

533 sera from Institute of Rheumatology

- 261 Systemic scleroderma (SCL) patients
- 332 Systemic lupus erythematodes (SLE)

Samples were diagnostically characterized by laboratory routine methods

- Indirect immunofluorescence (IIF): ANA, Hep 2, IMMUNOCONCEPT, San Diego
- BLOT: EUROLINE ANA Profile 3 plus DFS 70 IgG, Euroimmun, Germany; IMTEC-ANA-LIA-XL, IMTEC, Germany
- MBA: Microblot-Array ANA, TestLine Clinical diagnostics, Czech republic

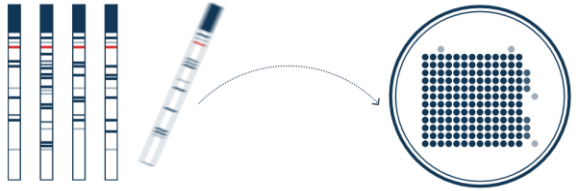


Image 1: The well of Microblot-Array

Results

Correlation between laboratory methods

SCL patients: agreement on all methods was 87.8%, on the MBA and IIF 92.2%, and on the MBA and BLOT 92.2%

SLE patients: agreement on all methods was 87.5%, on the MBA and IIF 87.5%, and on the MBA and BLOT 88.75%

Table 1: MBA, IIF, and Blot testing results of SLE and SCL patients.

		positive	negative
SLE	MBA	219	21
	IIF	231	9
	BLOTs	224	16
SCL	MBA	105	10
	IIF	110	5
	BLOTs	103	12

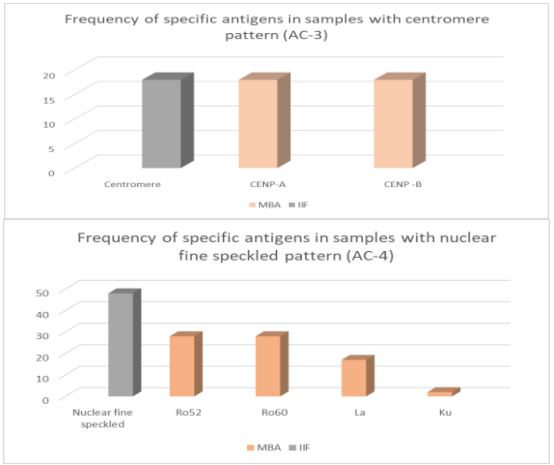
Table 2: SLE patients – comparison of MBA, IIF and Blots

MBA, IIF, BLOTs	SLE		SCL	
match positive	209	95.4%	99	94.3%
match negative	2	9.5%	3	30.0%
match all	211	87.9%	102	88.7%

Antigenic correlation with the ANA patterns

- AC1: reactivity of dsDNA 97.9%, histones 26.5%, nucleosomes 42.2%
- AC3: reactivity of CENP A and CENP B 100%
- AC4: reactivity of Ro52 58.3%, Ro60 58.3%, La 35.4%, Ku 4.2%
- AC5: reactivity of SmB 74.3%, SmD 34.3%, RNP A 91.4%, RNP68 68.6%, RNP C 51.4%

Figure 1:Antigenic correlation with the ANA patterns



MBA antigenic distribution in SARD subtypes

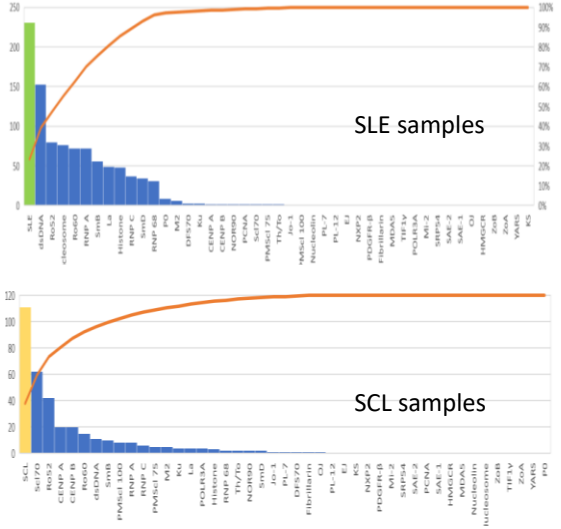
- The most reacting antigens in SCL patients (>20% samples): Scl70, Centromere, Ro52
- The most reacting antigens in SLE patients (>20% samples): dsDNA, Ro52, Nucleosomes, Ro 60, RNP and Sm antigens, La, Histone

Conclusion

The comparison shows that MBA is a reliable method for diagnosing AIDs, aligning well with traditional tests like BLOT and IFA.

This signals a new era in ANA testing, with MBA offering precision and efficiency. It can detect multiple disorders in one test, speeding up diagnostics, promising quicker, personalized treatment, and improved patient lives.

Figure 2:Distribution of antigens in samples tested by MBA ANAplus method



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