ASSOCIATION BETWEEN MICROBLOT ARRAY, IMMUNOBLOT ASSAYS AND CLINICAL INDICATORS OF SYSTEMIC AUTOIMMUNE DISEASES

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Introduction

Systemic autoimmune diseases depend on autoantibody testing for diagnosis. Microblot Array (MBA)/Immunoblot assays simultaneously detect multiple autoantibodies, making evaluation of their diagnostic performance and correlation with clinical, ANA, and ENA findings essential for routine practice.

Objectives

This study examines the association between MBA and IBA autoantibody profiles and clinical, ANA, and features suggestive of systemic autoimmune diseases, and evaluates the diagnostic validity.

Methods

Group 1: 77 patients with suspected autoimmune diseases. MBA performance.

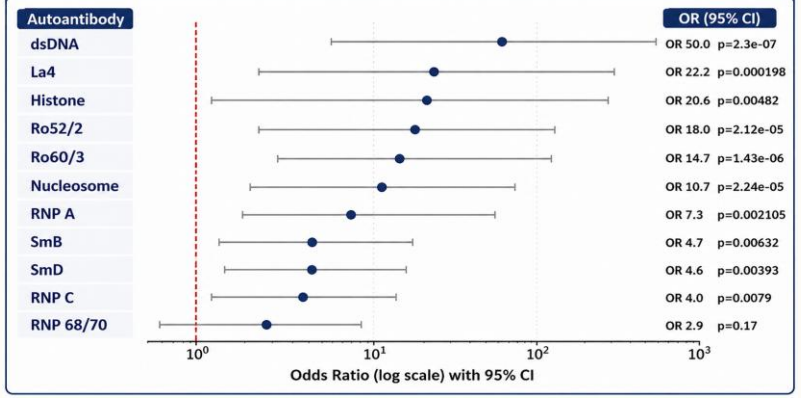
Group 2: 60 patients with suspected autoimmune diseases. MBA, IBA Concordance.

Group 1: Diagnostic Performance (DP): Sensitivity, Specificity, VPP, VPN, OR.

Group 2: Concordance: Agreement, Kappa Index.

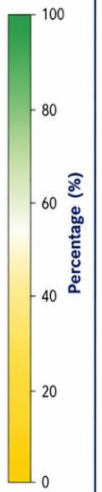
Analysis:
- Heatmap
- OR Graphs
- Chi-Square

B) Autoantibody Association with Lupus Using MBA



A) MBA Performance of Lupus Autoantibodies

Antibody	Sensitivity (%)	Specificity (%)	PPV (%)	NPV (%)
Ro60/3	62%	90%	76%	82%
dsDNA	50%	98%	93%	79%
Nucleosome	54%	90%	74%	79%
RNP A	54%	86%	67%	79%
Ro52/2	42%	96%	85%	77%
SmD	46%	84%	60%	75%
La4	31%	98%	89%	74%
RNP C	46%	82%	57%	75%
SmB	38%	88%	62%	74%
Histone	15%	100%	100%	70%
RNP 68/70	15%	94%	57%	69%



Results

Group 1: 26 LUPUS/51 non-LUPUS patients

Group 2: 14 negative patients/46 at least one positive Ab

Group 1: Slightly higher sensitivity than reported
Specificity >80% all antibodies

Group 2: ↑92% Agreement
Moderated Kappa Index

Analysis: A)Heatmap DP for LUPUS, B) OR per antibody, C) Heatmap agreement and kappa index.

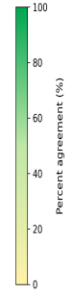
Conclusions

- MBA showed high DP, with specificity >80–90% across most autoantibodies, supporting its reliability in lupus diagnosis.
- Integrating MBA autoantibody profiles with clinical, ANA, and ENA data improves characterization of systemic autoimmune diseases.

C) Agreement and Kappa Index per Antibodies

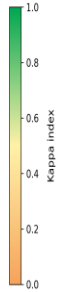
A) PERCENT AGREEMENT (%)

Autoantibody	MBA-IBT	MBA-ENA	IBT-ENA
Ro60	70.0	65.0	95.0
RNP-A	85.0	85.0	96.7
RNP-C	98.3	93.3	95.0
Nucleosome	90.0	91.7	95.0
Ro52	100.0	95.0	95.0
dsDNA	95.0	93.3	95.0
Histone	91.7	91.7	96.7
SmB	96.7	96.7	100.0
La	96.7	98.3	98.3
RNP-68/70	98.3	91.7	93.3
SmD	98.3	98.3	100.0
M2	98.3	98.3	96.7
CENP-B	96.7	96.7	93.3
Jo1	96.7	98.3	98.3
CENP-A	100.0	96.7	96.7
Scl-70	96.7	96.7	100.0
PL-7	98.3	NA	NA
PCNA	100.0	98.3	98.3
PL-12	100.0	NA	NA



B) KAPPA INDEX

Autoantibody	MBA-IBT	MBA-ENA	IBT-ENA
Ro60	0.18	0.08	0.64
RNP-A	0.33	0.39	0.78
RNP-C	0.91	0.63	0.74
Nucleosome	0.35	0.25	0.55
Ro52	1.00	0.64	0.64
dsDNA	0.38	0.30	0.38
Histone	-0.04	-0.04	0.65
SmB	0.48	0.48	1.00
La	0.49	0.79	0.66
RNP-68/70	0.66	0.26	0.47
SmD	0.66	0.66	1.00
M2	0.66	0.66	-0.02
CENP-B	0.00	0.00	-0.03
Jo1	0.00	0.66	0.00
CENP-A	NA	0.00	0.00
Scl-70	0.00	0.00	NA
PL-7	0.00	NA	NA
PCNA	NA	0.00	0.00
PL-12	NA	NA	NA



MBA: TestLine MBA • IBT: Immunoblot TestLine • ENA: ANAline18

S/N results were treated as NO. Numbers may vary slightly due to rounding.