

# Anti-Scl-70 (anti-topo I) autoantibodies in systemic lupus erythematosus: Myth or reality?

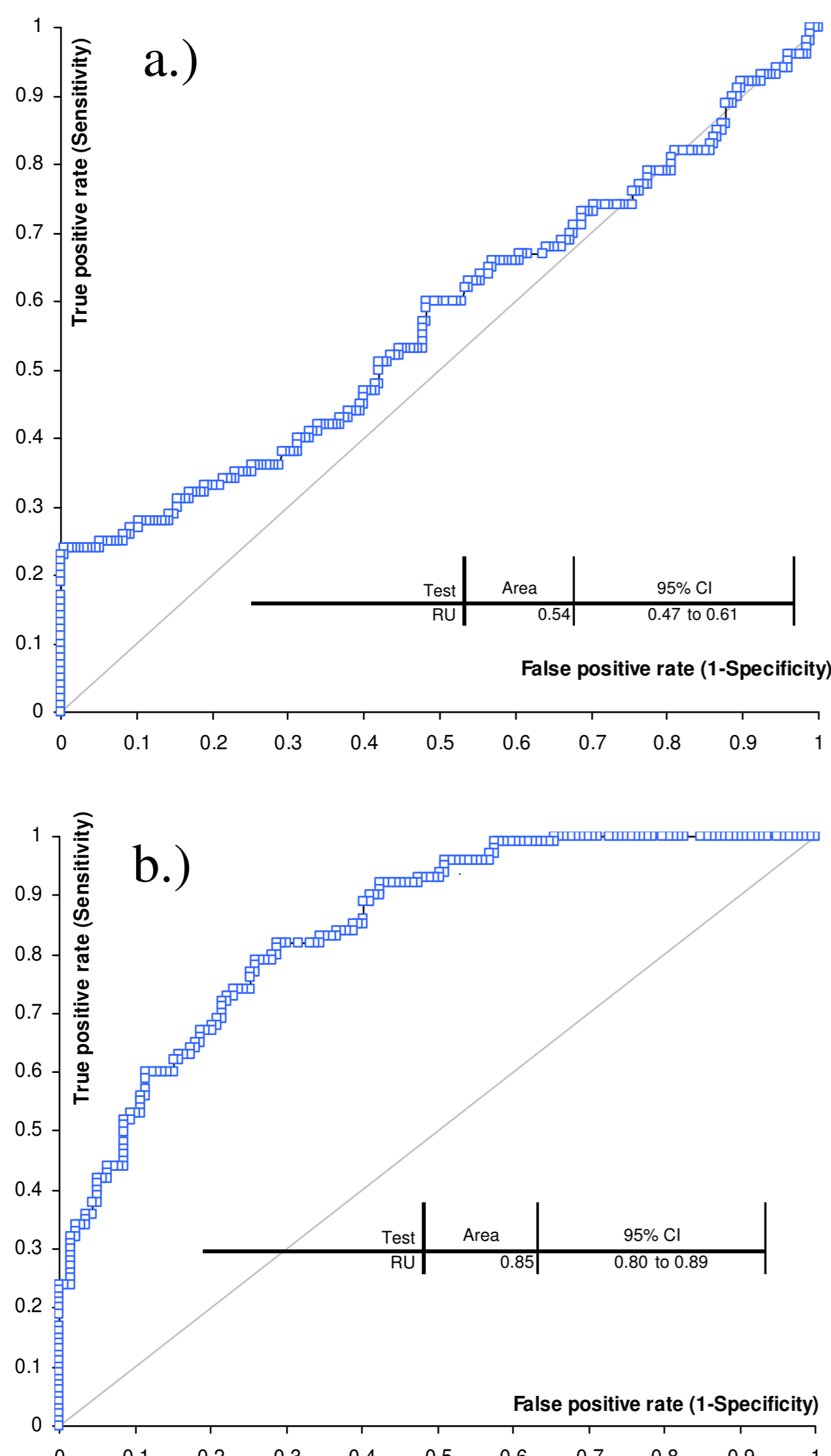
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**Background:** Autoantibodies (aab) to topoisomerase I (topo I, also referred to as Scl-70) have historically been considered a specific marker for systemic sclerosis (SSc). Although found in 20% of SSc sera, recent evidence indicated that anti-topo I aab occur in up to 25% of systemic lupus erythematosus (SLE). The objective was to analyse the prevalence of anti-topo I aab in SLE.

**Methods:** Unselected sera from SLE (n=244) and SSc (n=200) patients, and various controls were tested for anti-topo I aab by ELISA (Dr. Fooke Laboratorien). A few number of samples were also tested by Line immunoassay (LIA, recomLine ENA/ANA, Mikrogen) and addressable laser bead assay (QUANTA Plex 8, ALBIA; INOVA, US). Statistics was done with Analyze-it Version 2.03.

**Results and findings:** Anti-topo I reactivity was found in 24/100 SSc patients by ELISA (cut-off 1.5 RU), in 23/100 by LIA and in 19/100 by ALBIA. In the SLE sera, 5.7% were positive by ELISA, 0.3% by LIA and 2.6% by ALBIA (moderate to high positive).



**Figure 1** Receiver operating characteristics (ROC) analysis. ROC analysis was performed with a.) results of SSc sera vs. results of SLE patients and b.) healthy donors.

ROC analysis of SSc vs. SLE patients showed that at a cut-off of 2.4 RU the sensitivity and specificity of the topo I ELISA was 21% and 100%, respectively. The majority of anti-topo I positive SLE sera also had aab to either dsDNA or chromatin. The agreement between the different topo I assays in SSc was excellent (>0.85 kappa). Interestingly, anti-topo I reactivity was significantly higher in dsDNA(+) positive compared to dsDNA(-) SLE patients ( $p < 0.0001$ ).

$kappa = 0.97$  (CI = 0.92 to 1.03);  $p < 0.0001$

LIA	ELISA		Total
	pos	neg	
pos	23	0	23
neg	1	76	77
Total	24	76	100

$kappa = 0.85$  (CI = 0.73 to 0.98);  $p < 0.0001$

ALBIA	ELISA		Total
	pos	neg	
pos	19	0	19
neg	5	76	81
Total	24	76	100

$kappa = 0.88$  (CI = 0.77 to 0.99);  $p < 0.0001$

ALBIA	LIA		Total
	pos	neg	
pos	19	0	19
neg	4	77	81
Total	23	77	100

**Figure 2** Agreement between ELISA, LIA and ALBIA for the detection of anti-Scl-70 antibodies.

Pearson's  $X^2 = 17.7$ ;  $p < 0.0001$

Scl-70	dsDNA		Total
	pos	neg	
pos	10	3	13
neg	26	92	118
Total	36	95	131

**Figure 3** Correlation of anti-dsDNA and anti-Scl-70 antibodies in SLE patients

**Conclusion:** In this study, anti-topo I aab were found less frequently in SLE sera than previously reported in some studies. The different prevalence might be attributed to methodological aspects. Since all of the anti-topo I SLE samples showed low levels of reactivity, SLE and SSc patients can be distinguished by the anti-Scl-70 titre.