

ANA SCREENING METHODS IN THE DIAGNOSIS OF CONNECTIVE TISSUE DISEASES: AN ITALIAN MULTICENTER STUDY

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Background. Anti-nuclear antibodies (ANA) screening is the first-level assay under suspicion of autoimmune diseases. Indirect immunofluorescence (IIF) on HEp-2 cells is the main method for ANA detection. New techniques have been developed to overcome HEp2-IIF technical limitations. The automated fluoroenzyme immunoassay EliA™ CTD Screen on Phadia 250 (Phadia AB) is reported as a reliable method for the diagnosis of connective tissue diseases (CTD).

Aim. To evaluate the performance of the EliA™ CTD Screen in comparison to HEp2-IIF method for ANA screening.

Methods. Results of ANA screening by EliA™ CTD Screen, consisting of a mix of 14 antigens, the most relevant for CTD (U1RNP, SS-A/Ro, SS-B/La, CENPB, Scl-70, Jo-1, fibrillarin, RNA Pol III, Rib-P, PM-Scl, PCNA, Mi-2, Sm, DNA) were compared with the HEp2-IIF in 378 subjects (287 defined autoimmune patients, 60 healthy donors, 34 non-autoimmune pathological controls).

Results. EliA™ CTD Screen classifies samples as negative, positive and equivocal, at variance with HEp2-IIF positive/negative results. The equivocal samples were considered positive in the evaluation of assay agreement and accuracy. Compared to HEp2-IIF, EliA™ CTD Screen showed a good overall (83.3%) and negative agreement (90.7%), while the positive one was slightly lower (81.2%). Considering diagnosis, EliA™ CTD Screen showed a sensitivity of 82.6% and a specificity of 91.2%. As EliA™ CTD Screen does not include RA specific antigens, agreement and sensitivity were re-calculated after the exclusion of RA patients, showing better performances (Table 1).

Conclusions. EliA™ CTD Screen might help in differentiating patients with and without CTD along with HEp2-IIF ANA screening.

	with RA patients	without RA patients
Agreement EliA™ CTD Screen / HEp2-IIF	% (95% CI)	% (95% CI)
<i>Overall agreement</i>	83.3 (79.6 - 87.1)	87.8 (84.4 - 91.3)
<i>Positive agreement</i>	81.2 (76.7 - 85.6)	86.4 (82.3 - 90.5)
<i>Negative agreement</i>	90.7 (84.6 - 96.8)	92.5 (86.7 - 98.3)
EliA™ CTD Screen operative characteristics	% (95% CI)	% (95% CI)
<i>Accuracy</i>	84.7 (81.0 - 88.3)	89.9 (86.7 - 93.0)
<i>Sensitivity</i>	82.6 (78.2 - 87.0)	89.4 (85.6 - 93.2)
<i>Specificity</i>	91.2 (85.4 - 97.0)	91.2 (85.4 - 97.0)