

RDL's **ANA Profiles** are comprehensive, cost-effective autoantibody panels available for laboratory evaluation of suspected antinuclear antibody (ANA)-positive rheumatic disease. They were developed for their clinical relevance as a complete diagnostic aid with potential prognostic utility. All **ANA Profiles** are performed reflexively. If the ANA is negative, no further testing is performed except for anti-Ro (SS-A), which is performed at no additional charge. If the ANA is positive, the entire profile is performed. Any of our **ANA Profiles** can be ordered as a "Do All".

UNIQUELY AVAILABLE FROM RDL AT NO ADDITIONAL CHARGE: Immunofluorescence patterns on routine ANA studies which suggest the presence of Proliferating Cell Nuclear Antigen (PCNA), Ribosomal P Protein and Mitochondrial autoantibodies are reflexively evaluated by traditional techniques.

ANA PROFILES IN ANA-POSITIVE RHEUMATIC DISEASE

ANTIBODY SPECIFICITY	ACTIVE SLE	MCTD	PSS	CREST	PRIMARY SJOGREN'S	RA	DRUG-INDUCED SLE
ANA	>95%	>95%	70-90%	60-90%	>70%	40-50%	100%
Anti-dsDNA	60%	Negative	Negative	Negative	Rare	Rare	Negative
Anti-Sm	30%	Negative	Negative	Negative	Negative	Negative	Negative
Anti-RNP	30%	>95% (high titer)	Common (low titer)	Negative	Rare (low titer)	Rare	10-20% (low titer)
Anti-Centromere	Rare	Rare	10-15%	60-90%	Negative	Negative	Negative
Anti-Ro (SS-A)	30%	Rare	Rare	Negative	70%	10-15%	Negative
Anti-La (SS-B)	15%	Rare	Rare	Negative	60%	Rare	Negative
Anti-Nucleolar	Occasional	Negative	Common	Negative	Occasional	Rare	Negative
Anti-Scl-70	Rare	Negative	10-20%	Negative	Negative	Negative	Negative
Anti-Histone	24-95%	Occasional	Occasional	Occasional	Occasional	20%	Procainamide: 67-100% Sensitivity Hydralazine: 50-100% Sensitivity

GUIDE TO INTERPRETATION

1. A negative **ANA** excludes active Systemic Lupus Erythematosus (SLE) in >95% of cases.
2. False-positive **ANAs** occur in the following frequencies:
 - at 1:40: 32%
 - at 1:80: 13%
 - at 1:320: 3%
 - The number of false-positive **ANAs** increases with age.

3. Positive **ANAs** lack specificity, and can occur in many autoimmune rheumatic diseases, chronic inflammatory and infectious diseases, malignancies, and can also be induced by certain drugs.
4. Although unusual, low titer **ANAs** (1:40, 1:80) can be accompanied by other autoantibodies including **Anti-DNA**, **Anti-Chromatin**, **Anti-RNP**, **Anti-Ro** and others.
5. **Anti-Centromere Abs** strongly suggest CREST Syndrome and are occasionally seen in Progressive Systemic Sclerosis (PSS), Raynaud's Phenomenon and Primary Biliary Cirrhosis.
6. **Anti-dsDNA Abs** are essentially restricted to SLE and are seen infrequently in severe Rheumatoid Arthritis (RA). Increases in Anti-dsDNA Ab titers may predict flares in SLE.
7. **Anti-Sm Abs** are 99% specific for SLE. Sensitivity is higher in Blacks and Asians than Caucasians of European descent.
8. High titer **Anti-RNP Abs** (>1:10,000) are characteristic of Mixed Connective Tissue Disease (MCTD), particularly if unaccompanied by other autoantibody specificities.
9. **Anti-RNP Abs**, which are diagnostic for MCTD, especially at high titer, are also commonly seen in SLE, but titers are usually modest. Anti-RNP Abs can also be seen in PSS, Myositis, some RA and Sjogren's in low to modest titers.
10. **Anti-Ro and Anti-La Abs** are most often seen in Primary Sjogren's Syndrome, less frequently in SLE and least frequently in Secondary Sjogren's Syndrome. **Anti-Ro** and **Anti-La Abs** are strongly associated with Subacute Cutaneous LE, Neonatal Lupus Dermatitis, Congenital Complete Heart Block and rarely in Lupus Nephritis.
11. **Anti-Ro Ab** has also been associated with:
 - Photosensitive skin rash in SLE
 - Homozygous C2 Deficiency in SLE-like illness
 - Congenital Complete Heart Block
 - Interstitial Pneumonitis Disease in SLE
 - Pregnant women with Lupus accompanied by Anti-Ro have a 5% chance of having an infant with Congenital Complete Heart Block
 - Asymptomatic mothers of infants born with Congenital Complete Heart Block are at increased risk of developing a Connective Tissue Disease.
 - Thrombocytopenia (SLE, Sjogren's)
 - Lymphopenia (SLE, Sjogren's)
 - Nephritis, Anti-Ro without Anti-La
12. **Anti-Scl-70 Abs** (Anti-Topoisomerase 1 Abs) are seen in PSS and correlate with Pulmonary Fibrosis.
13. **Anti-PCNA (Proliferating Cell Nuclear Ag) Abs** are highly specific for SLE, but sensitivity is only ~4%.
14. **Anti-Ribosomal P Protein Abs:**
 - Psychosis/depression in SLE: 45-90% reported (controversial)
 - Highly specific for SLE occurring in 10-20% of patients
 - CNS neuropsychiatric association in children and adolescents is less reliable than in adults.
15. **Anti-Chromatin Abs:**
 - Useful marker for SLE with Nephritis and can be seen in the absence of **Anti-DNA**
 - Seen in SLE with sensitivity of 70%
 - Seen in Drug Induced LE where it targets H₂A - H₂B linked to DNA which appears to be the major antigen in Drug Induced LE compared to Anti-Histone Abs which are directed against potentially all histone components H₁, H₂A, H₂B, H₃, H₄ as well as H₂A-H₂B-DNA in SLE and other disorders.
 - Can help to distinguish Drug Induced LE (Anti-H₂A-H₂B-DNA) compared to Drug Induced ANA.
 - Specificity overall is good for SLE, Drug Induced LE, but can be seen in PSS, RA, MCTD and Type I Chronic Autoimmune Hepatitis.
16. **Anti-Mitochondrial Abs** are associated with Primary Biliary Cirrhosis, Scleroderma and CREST Syndrome.
17. **Anti-Thyroid Microsomal (Thyroid Peroxidase) Abs** are associated with Autoimmune Thyroid Disease, are predictive of development of biochemical Hypothyroidism and occur commonly with positive ANAs.
18. **Anti-Histone Abs** may help in confirming a suspicion of Drug Induced LE but cannot distinguish Drug Induced ANA from Drug Induced LE which typically targets H₂A-H₂B-DNA (Anti-Chromatin), particularly in Drug Induced LE.
 - 95% of Drug Induced LE
 - 70-80% of SLE
 - Can be seen occasionally Scleroderma, RA, Sjogren's, JRA, Felty's Syndrome, MCTD, Vasculitis Neoplasms and Liver Disease.

RDL Reference Lab offers four reflexive ANA Profiles. The two most popular ANA Profiles are the **ANA 12 Profile** and the **ANA 12 Plus Profile**.

ANA 12 Profile

- ▶ **Anti-Nuclear Ab**
- ▶ **Anti-dsDNA Ab**
- ▶ **Anti-Ro Ab (SS-A)**
- ▶ **Anti-La Ab (SS-B)**
- ▶ **Anti-SM Ab**
- ▶ **Anti-RNP Ab**
- ▶ **Anti-Scl-70 Ab**
- ▶ **Anti-Centromere Ab**
- ▶ **C3 & C4 Complements**
- ▶ **Anti-Thyroid Microsomal Ab**
- ▶ **Anti-Cardiolipin Abs (IgG, IgA, IgM Isotypes)**
- ▶ **Anti-Chromatin Ab, IgG (Anti-Nucleosome Abs)**

ANA 12 Plus Profile assists in the evaluation of polyarthritis and related systemic autoimmune diseases that may be characterized by ANA positivity. The ANA 12 Plus Profile will be identical to the ANA 12 Profile with the addition of Anti-Cyclic Citrullinated Peptide Antibody (Anti-CCP) and Rheumatoid Factor by Nephelometry.

The ANA 12 Plus Profile will enhance the serologic evaluation of these diseases when accompanied by inflammatory polyarthritis.

ANA 12 Plus Profile

- ▶ **Anti-Nuclear Ab**
- ▶ **Anti-dsDNA Ab**
- ▶ **Anti-Ro Ab (SS-A)**
- ▶ **Anti-La Ab (SS-B)**
- ▶ **Anti-SM Ab**
- ▶ **Anti-RNP Ab**
- ▶ **Anti-Scl-70 Ab**
- ▶ **Anti-Centromere Ab**
- ▶ **C3 & C4 Complements**
- ▶ **Anti-Thyroid Microsomal Ab**
- ▶ **Anti-Cardiolipin Abs (IgG, IgA, IgM Isotypes)**
- ▶ **Anti-Chromatin Ab, IgG (Anti-Nucleosome Abs)**
- ▶ **Anti-Cyclic Citrullinated Peptide Ab (CCP)**
- ▶ **Rheumatoid Factor By Nephelometry**