Systemic Sclerosis Antibodies

Systemic sclerosis (SSc), also called scleroderma, is a chronic autoimmune disorder characterized by fibrosis of the skin and various organs. Early diagnosis and classification are important so that patients can be evaluated for organ involvement and/or damage. However, because SSc is a heterogeneous disease, clinical presentation and disease course vary, and manifestations may overlap with those of other rheumatic disorders, all of which can complicate diagnosis. The initial testing strategy includes CBC with platelet count and automated differential and nuclear antibody (ANA) by IFA, IgG. Confirmatory or secondary testing should be performed based on ANA IFA patterns (centromere, nucleolar, and speckled patterns), clinical presentation, and/or ethnicity.

Disease Overview

Prevalence
0.3-2.8/100,000 worldwide

Age of Onset
20-50 years of age

Sex
M:F, 1:3

Diagnostic Issues

Autoimmune connective tissue diseases may present with similar features, particularly early in disease, making diagnosis difficult. The following considerations may assist in determining a diagnosis of SSc:

- ANA IFA patterns may help define diagnostic pathways
  - Most patients with SSc will have either:
    - Centromere antibodies
    - Scl-70 antibodies
    - RNA polymerase III antibodies
  - These three antibody tests are required for the initial evaluation of SSc although the use of other autoantibody markers may improve diagnostic sensitivity for disease

Tests to Consider

Comprehensive Systemic Sclerosis Panel 3000480
- Indicated when suspicion for SSc is high and patient presents with features of overlap syndrome
- Individual tests in panel may be ordered separately. (See Related Tests.)

Criteria Systemic Sclerosis Panel 3000479
- Indicated for patients with distinct features of SSc
- Negative results do not rule out SSc; if test is negative and suspicion for SSc is high, consider testing for U3 RNP (fibrillarin), PM/Scl-100, U1 RNP, Th/Tho, or other connective tissue disease autoantibodies based on patient’s clinical presentation
The presence of SSc-specific antibodies may help predict disease phenotypes, which include:
- CREST (calcinosis, Raynaud phenomenon, esophageal dysmotility, sclerodactyly, and telangiectasia) syndrome: antibodies against centromere are most common
- Diffuse cutaneous SSc: antibodies against Scl-70 and RNA polymerase III most common
- Antibody patterns may differ by ethnicity
  - Antibodies against U3-RNP are more common in African Americans
  - Th/To autoantibodies are more common in Caucasians with limited cutaneous SSc

**Test Interpretation**

**Clinical Sensitivity**
- ANA by IFA for SSc: 90-95%
- Individual SSc-specific marker: may vary based on ethnicity

**Results**
- ANA patterns (including centromere) are reported
- If positive, pattern and titers are reported

**Limitations**
- Negative antibody test result does not exclude SSc (5-10% of patients with SSc are ANA IFA negative)
- Panel does not include Th/To

**References**


**Related Information**

**Systemic Sclerosis - Scleroderma**

**Related Tests**

Antinuclear Antibody (ANA) with HEP-2 Substrate, IgG by IFA 3000082
Method: Semi-Quantitative Indirect Fluorescent Antibody

Antinuclear Antibody (ANA) with HEp-2 Substrate, IgG by IFA with Reflex by Pattern 3000601

Centromere Antibody, IgG 0050714
Method: Semi-Quantitative Multiplex Bead Assay

Connective Tissue Diseases Profile 0051668
Method: Semi-Quantitative Multiplex Bead Assay

Fibrillarin (U3 RNP) Antibody, IgG 2012173
Method: Qualitative Immunoblot

Extended Myositis Panel 3001781
Method: Qualitative Immunoprecipitation/Semi-Quantitative Multiplex Bead Assay/Qualitative Immunoblot

PM/Scl-100 Antibody, IgG by Immunoblot 2003040
Method: Qualitative Immunoblot

RNA Polymerase III Antibody, IgG 2001601
Method: Semi-Quantitative Enzyme-Linked Immunosorbent Assay

Smith/RNP (ENA) Antibody, IgG 0050470
Method: Semi-Quantitative Multiplex Bead Assay

Scleroderma (Scl-70) (ENA) Antibody, IgG 0050599
Method: Semi-Quantitative Multiplex Bead Assay

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