MAYO CLINIC LABORATORIES

Test Definition: RIB

Ribosome P Antibodies, IgG, Serum

Overview

Useful For

As an adjunct in the diagnostic evaluation of patients with systemic lupus erythematosus (SLE)

May be useful in the phenotypic stratification of SLE patients at risk for neuropsychiatric SLE, lupus nephritis and/or hepatitis

Testing Algorithm

For more information see Connective Tissue Disease Cascade.

Special Instructions

- Connective Tissue Disease Cascade

Method Name

Multiplex Flow Immunoassay

NY State Available

Yes

Specimen

Specimen Type

Serum

Specimen Required

Collection Container/Tube:

Preferred: Serum gel

Acceptable: Red top

Submission Container/Tube: Plastic vial

Specimen Volume: 0.5 mL

Collection Instructions: Centrifuge and aliquot serum into a plastic vial.

Specimen Minimum Volume

0.35 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	Reject

Gross icterus	OK
Heat-Treated	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	21 days	
	Frozen	21 days	

Clinical & Interpretive

Clinical Information

Systemic lupus erythematosus (SLE) is a heterogeneous autoimmune disease that affects multiple organ systems with diverse clinical presentations. The disease is characterized by a diversity of antinuclear antibody (ANA) specificities associated with positivity of nuclear and/or cytoplasmic patterns using the HEp-2 substrate by indirect immunofluorescence assay (IFA).(1,2) Of the ANA-specific autoantibodies, only anti-dsDNA and anti-Smith antibodies associated with the Hep-2 substrate IFA nuclear patterns are required in contemporary classification criteria for SLE.(3,4) Detection of non-criteria SLE autoantibodies and their associated profiles are fundamental in the clinical management of patients as these antibodies provide important clues for diagnosis, phenotypic categorization, and disease activity, as well as potential therapeutic targets.(5) For example, these autoantibodies may be involved in the inflammatory and immune complex formation causing damage in multiple end-organs such as kidney, skin, and central nervous system (CNS).

Anti-ribosomal P protein (anti-Rib-P, anti-P) antibodies were initially described in the 1980s and subsequently reported to recognize three specific ribosomal proteins (P0, P1 and P2, of 38, 19 and 17 kDa molecular weight, respectively) located in the large ribosome's subunit.(6). A 2015 systematic review and meta-analysis of published studies reported significant association with malar rash, oral ulcer, photosensitivity and anti-dsDNA antibody positivity.(7) However, the associations with neuropsychiatric SLE, hepatic damage, serum anti-Smith and anti-cardiolipin antibodies were observed more frequently in anti-Rib-P positive patients than in negative patients. In a more recent meta-analysis, significant associations were noted for CNS involvement and psychosis, and lupus hepatitis with heterogeneity between studies for lupus nephritis.(6) In a recent large single center study, anti-Rib-P antibody positivity was associated with a higher proportion of neurological involvement ($p < 0.05$) at baseline.(8) In the same study, antibody-positive patients for anti-Rib-P antibodies were more likely to accumulate neuropsychiatric damage (adjusted HR = 3.8, 95% CI 2.7-57), $p < 0.001$). The variable clinical associations between positivity for anti-Rib-P antibodies and the reported SLE manifestations in these and other studies may be due to demographic and clinical heterogeneity of the cohorts and different formulations of the immunoassays and methods for detecting antibodies.(6,9)

Anti-ribosomal antibodies can be detected and quantified using a variety solid-phase immunoassays in the clinical laboratory. The use of different antigenic combinations and antigens from different sources limit commutability between testing methods.(6)

Reference Values

<1.0 U (negative)
> or =1.0 U (positive)

Reference values apply to all ages.

Interpretation

As an adjunct in the diagnostic evaluation of patients with systemic lupus erythematosus (SLE)

May be useful in the phenotypic stratification of SLE patients at risk for neuropsychiatric SLE, lupus nephritis and/or hepatitis

Cautions

Most patients with systemic lupus erythematosus (SLE) do not have detectable levels of antibodies to ribosome P protein.

Positivity of anti-ribosomal p antibody alone should not be relied upon to establish the diagnosis or to rule out the diagnosis in a patient with signs and symptoms compatible with SLE.

Clinical Reference

1. Damoiseaux J, Andrade LEC, Carballo OG, et al. Clinical relevance of HEp-2 indirect immunofluorescent patterns: the International Consensus on ANA patterns (ICAP) perspective. Ann Rheum Dis. 2019;78(7):879-889
2. Bossuyt X, De Langhe E, Borghi MO, Meroni PL. Understanding and interpreting antinuclear antibody tests in systemic rheumatic diseases. Nat Rev Rheumatol. 2020;16:715-726
3. Petri M, Orbai AM, Alarcón GS, et al. Derivation and validation of the Systemic Lupus International Collaborating Clinics classification criteria for systemic lupus erythematosus. Arthritis Rheum. 2012;64:2677-2686
4. Aringer M, Costenbader K, Daikh D, et al. 2019 European League Against Rheumatism/American College of Rheumatology classification criteria for systemic lupus erythematosus. Ann Rheum Dis. 2019;78:1151-1159
5. Irure-Ventura J, López-Hoyos M. Disease criteria of systemic lupus erythematosus (SLE); the potential role of non-criteria autoantibodies. J Transl Autoimmun. 2022;5:100143
6. Choi MY, FitzPatrick RD, Buhler K, Mahler M, Fritzler MJ. A review and meta-analysis of anti-ribosomal P autoantibodies in systemic lupus erythematosus. Autoimmun Rev. 2020;19:102463
7. Shi ZR, Cao CX, Tan GZ, Wang L. The association of serum anti-ribosomal P antibody with clinical and serological disorders in systemic lupus erythematosus: a systematic review and meta-analysis. Lupus. 2015;24:588-596
8. Ding Y, Zhao J, Qian J, et al. The role of anti-ribosomal P autoantibodies in the prediction of neuropsychiatric damage in systemic lupus erythematosus based on CSTAR cohort (XIV). Clin Rheumatol. 2022;41:1371-1379
9. Emerson JS, Gruenewald SM, Gomes L, Lin MW, Swaminathan S. The conundrum of neuropsychiatric systemic lupus erythematosus: Current and novel approaches to diagnosis. Front Neurol. 2023;14:1111769

Performance

Method Description

Affinity-purified ribosome P antigens are coupled covalently to polystyrene microspheres, which are impregnated with fluorescent dyes to create a unique fluorescent signature. Ribosome P antibodies, if present in diluted serum, bind to ribosome P antigen on the microspheres. The microspheres are washed to remove extraneous serum proteins. Phycoerythrin (PE)-conjugated, antihuman IgG antibody is then added to detect IgG anti-ribosome P antibodies bound to the microspheres. The microspheres are washed to remove unbound conjugate, and bound conjugate is detected by laser photometry. A primary laser reveals the fluorescent signature of each microsphere to distinguish it from

microspheres that are labeled with other antigens, and a secondary laser reveals the level of PE fluorescence associated with each microsphere. Results are calculated by comparing the median fluorescence response for ribosome P microspheres to a 4-point calibration curve.(Package insert: Bioplex 2200 ANA Screen. Bio-Rad Laboratories; 02/2019)

PDF Report
No

Day(s) Performed
Monday through Saturday

Report Available
Same day/1 to 3 days

Specimen Retention Time
14 days

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Superior Drive

Fees & Codes

Fees
- Authorized users can sign in to Test Prices for detailed fee information.
- Clients without access to Test Prices can contact Customer Service 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact Customer Service.

Test Classification
This test has been cleared, approved, or is exempt by the US Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

CPT Code Information
83516

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
RIB	Ribosome P Ab, IgG, S	53892-6

Result ID	Test Result Name	Result LOINC® Value
RIB	Ribosome P Ab, IgG, S	53892-6