MAYO CLINIC LABORATORIES

Test Definition: RHUT

Rheumatoid Factor, Serum

Overview

Useful For
Diagnosis and prognosis of rheumatoid arthritis

Testing Algorithm
For more information see Connective Tissue Disease Cascade.

Special Instructions
- Connective Tissue Disease Cascade

Method Name
Turbidimetry

NY State Available
Yes

Specimen

Specimen Type
Serum

Additional Testing Requirements
An alternative or complementary assay to rheumatoid factor (RF) that has demonstrated utility in the diagnosis and assessment of rheumatoid arthritis (RA) is CCP / Cyclic Citrullinated Peptide Antibodies, IgG, Serum. Utilization of both tests can provide clinical value in the diagnosis of RA. RF is not specific and may be present in other inflammatory rheumatic diseases and nonrheumatic diseases as well as in nonaffected individuals, especially in those 60 years of age or older.

Specimen Required
Supplies: Sarstedt Aliquot Tube, 5 mL (T914)
Collection Container/Tube:
Preferred: Serum gel
Acceptable: Red top
Submission Container/Tube: Plastic vial
Specimen Volume: 1 mL serum
Collection Instructions: Centrifuge and aliquot serum into a plastic vial.

Forms
If not ordering electronically, complete, print, and send a Kidney Transplant Test Request with the specimen.

Specimen Minimum Volume

Serum: 0.75 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	OK
Gross icterus	OK

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Serum	Refrigerated (preferred)	14 days	
	Ambient	14 days	
	Frozen	14 days	

Clinical & Interpretive

Clinical Information

Rheumatoid factors (RF) are a heterogeneous group of autoantibodies associated with the diagnosis of rheumatoid arthritis (RA) and can also be found in other inflammatory rheumatic and nonrheumatic conditions as well as in some healthy individuals aged 60 years and older. Despite being nonspecific, the detection of RF or anti-citrullinated protein (anti-CCP) antibody is part of the 2010 diagnosis criterion of the American College of Rheumatology for classification of RA. More than 75% of patients with RA have an IgM antibody to IgG. The titer of RF correlates poorly with disease activity, but those patients with high titers tend to have more severe disease and, thus, a poorer prognosis than seronegative patients.

A meta-analysis compared the sensitivity and specificity of IgM RF versus anti-CCP antibody. For IgM RF, the sensitivity was 69% (CI, 65%-73%) and specificity was 85% (CI, 82%-88%). For comparison, the sensitivity for anti-CCP antibody was 67% (95% CI, 62%-72%) and 95% (CI, 94%-97%).(1) Both anti-CCP and RF are useful in the diagnosis of RA, and the use of both tests has been shown to increase diagnostic sensitivity.(2)

Reference Values

<15 IU/mL

Interpretation

Positive results are consistent with, but not specific for, rheumatoid arthritis.

Cautions

Nonrheumatoid and rheumatoid arthritis (RA) populations are not clearly separate with regard to the presence of rheumatoid factor (RF) (15% of RA patients have a nonreactive titer and 8% of nonrheumatoid patients have a positive titer). Patients with various nonrheumatoid diseases characterized by chronic inflammation may test positive for RF. These diseases include systemic lupus erythematosus, polymyositis, tuberculosis, syphilis, viral hepatitis, infectious

mononucleosis, and influenza. RF factor antibodies have been observed in non-affected individuals, particularly in patients aged 60 years or older.

Clinical Reference

1. Nishimura K, Sugiyama D, Kogata Y, et al. Meta-analysis: diagnostic accuracy of anti-cyclic citrullinated peptide antibody and rheumatoid factor for rheumatoid arthritis. Ann Intern Med. 2007;146(11):797-808
2. Chang PY, Yang CT, Cheng CH, Yu KH. Diagnostic performance of anti-cyclic citrullinated peptide and rheumatoid factor in patients with rheumatoid arthritis. Int J Rheum Dis. 2016;19(9):880-886
3. Aletaha D, Neogi T, Silman AJ, Funovits J. 2010 Rheumatoid arthritis classification criteria: an American College of Rheumatology/European League Against Rheumatism collaborative initiative. Arthritis Rheum. 2010;62(9):2569-2581
4. Smolen JS, Alethaha D, McInnes IB. Rheumatoid arthritis. Lancet. 2016;388(10055):2023-2038
5. Roberts-Thomson PJ, McEvoy R, Langhans T, Bradley J. Routine quantification of rheumatoid factor by rate nephelometry. Ann Rheum Dis. 1985;44(6):379-383

Performance

Method Description

The Roche rheumatoid factors (RF-II) assay is an immunoturbidimetric assay. Latex-bound heat-inactivated IgG (antigen) reacts with the rheumatoid factor (RF) antibodies in the sample to form antigen/antibody complexes, that following agglutination, are measured turbidimetrically. Rheumatoid factors are autoantibodies that are directed against the Fc fragment of IgG. The autoantibodies occur in all immunoglobulin classes (IgA, IgG, and IgM). The Roche RF II assay measures all 3 types of autoantibodies. However, as the IgA and IgG types typically exhibit lower concentrations, the reaction against IgM autoantibodies predominates in this assay.(Package insert: RF-II, Rheumatoid Factors II. Roche Diagnostics; V 10.0 English, 03/2022)

PDF Report

No

Day(s) Performed

Monday through Friday

Report Available

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

86431

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
RHUT	Rheumatoid Factor, S	11572-5

Result ID	Test Result Name	Result LOINC® Value
RHUT	Rheumatoid Factor, S	11572-5