Test Definition: CRGSP

Cryo Panel, S and P

Overview

Useful For

Evaluating patients with vasculitis, glomerulonephritis, and lymphoproliferative diseases

Evaluating patients with macroglobulinemia or myeloma in whom symptoms occur with cold exposure

This test is **not useful for** general screening of a population without a clinical suspicion of cryoglobulinemia.

Profile Information

Test ID	Reporting Name	Available Separately	Always Performed
CRY_S	Cryoglobulin, S	Yes	Yes
CRY_P	Cryofibrinogen, P	No	Yes

Reflex Tests

Test ID	Reporting Name	Available Separately	Always Performed
IMFXC	Immunofixation Cryoglobulin	No	No

Testing Algorithm

If cryoglobulin has a positive result after 1 or 7 days, then immunofixation will be performed at an additional charge. Positive cryoglobulins of 0.1 mL or above of precipitate will be typed once.

Method Name

CRY_S, CRY_P: Quantitation and Qualitative Typing Precipitation at 1 Degree C

Includes cryofibrinogen.

IMFXC: Immunofixation

NY State Available

Yes

Specimen

Specimen Type

Plasma EDTA
Serum Red

Specimen Required

Both plasma and serum are required.

Cryofibrinogen

Collection Container/Tube: Lavender top (EDTA)

Submission Container/Tube: Plastic vial

Specimen Volume: 1 mL

Collection Instructions:

1. Tube must remain at 37 degrees C.

2. Centrifuge at 37 degrees C. (**Do not use a refrigerated centrifuge.** If absolutely necessary, ambient temperature is acceptable.) It is very important that the specimen remain at 37 degrees C until after separation of plasma from red cells.

3. Place plasma into an appropriately labeled plastic vial.

Cryoglobulin

Collection Container/Tube: Red top (serum gel/SST are not acceptable)

Submission Container/Tube: Plastic vial

Specimen Volume:5 mL

Collection Instructions:

1. Tube must remain at 37 degrees C.

2. Allow blood to clot at 37 degrees C.

3. Centrifuge at 37 degrees C. (**Do not use a refrigerated centrifuge.** If absolutely necessary, ambient temperature is acceptable.) It is very important that the specimen remain at 37 degrees C until after separation of serum from red cells.

4. Place serum into an appropriately labeled plastic vial.

Additional Information: Analysis cannot be performed with less than 3 mL of serum. Smaller volumes are insufficient to detect clinically important trace (mixed) cryoglobulins. Less than 3 mL will require draw of a new specimen.

Forms

If not ordering electronically, complete, print, and send a Benign Hematology Test Request Form (T755) with the specimen.

Specimen Minimum Volume

Plasma: 0.5 mL
Serum: 3 mL

Reject Due To

Gross hemolysis	OK
Gross lipemia	OK
Gross icterus	OK

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Plasma EDTA	Refrigerated (preferred)		
	Frozen		
Serum Red	Refrigerated (preferred)		
	Frozen		

Clinical and Interpretive

Clinical Information

Cryoglobulins are immunoglobulins that precipitate when cooled and dissolve when heated. Because these proteins precipitate when cooled, patients may experience symptoms when exposed to the cold. Cryoglobulins may be associated with a variety of diseases including plasma cell disorders, autoimmune diseases, and infections. Cryoglobulins may also cause erroneous results with some automated hematology instruments.

Cryoglobulins are classified as:

-Type I (monoclonal)

-Type II (mixed--2 or more immunoglobulins of which 1 is monoclonal)

-Type III (polyclonal--in which no monoclonal protein is found)

Type I cryoglobulinemia is associated with monoclonal gammopathy of undetermined significance, macroglobulinemia, or multiple myeloma.

Type II cryoglobulinemia is associated with autoimmune disorders such as vasculitis, glomerulonephritis, systemic lupus erythematosus, rheumatoid arthritis, and Sjogren's syndrome. It may be seen in infections such as hepatitis, infectious mononucleosis, cytomegalovirus, and toxoplasmosis. Type II cryoglobulinemia may also be essential, ie, occurring in the absence of underlying disease.

Type III cryoglobulinemia usually demonstrates trace levels of cryoprecipitate, may take up to 7 days to appear, and is associated with the same disease spectrum as Type II cryoglobulinemia.

A cryoprecipitate that is seen in plasma but not in serum is caused by cryofibrinogen. Cryofibrinogens are extremely rare and can be associated with vasculitis. Due to the rarity of clinically significant cryofibrinogenemia, testing for cryoglobulins is usually sufficient for investigation of cryoproteins.

Reference Values

CRYOGLOBULIN

Negative (positives reported as percent or trace amount)

If positive after 1 or 7 days, immunotyping of the cryoprecipitate is performed at an additional charge.

CRYOFIBRINOGEN

Negative

Quantitation and immunotyping will not be performed on positive cryofibrinogen.

Interpretation

An interpretive report will be provided.

Cautions

Failure to follow specimen handling instructions may cause false-negative results.

Clinical Reference

1. Kyle RA, Lust JA: Immunoglobulins and laboratory recognition of monoclonal proteins. Section III. Myeloma and related disorders. In: Wiernik PH, Canellos GP, Dutcher JP, Kyle RA, eds. Neoplastic Diseases of the Blood. 3rd ed. Churchill Livingstone; 1996:453-475

2. Desbois AC, Cacoub P, Saadoun D: Cryoglobulinemia: An update in 2019. Joint Bone Spine. 2019 Nov;86(6):707-713. doi: 10.1016/j.jbspin.2019.01.016

Performance

Method Description

The normal proteins of plasma and serum do not precipitate in the cold. An aliquot of plasma and of serum are incubated for 24 hours at 1 degree C. If a precipitate develops in the serum, the specimen is centrifuged and the percent precipitate is reported. Negative specimens are kept at 1 degree C for 7 days and rechecked. All positive cryoglobulins are analyzed by immunofixation to determine if the precipitate is a monoclonal protein, polyclonal protein, or a mixed cryoglobulin. Precipitates that occur in plasma and not serum are reported as positive for cryofibrinogen. Cryofibrinogen-positive specimens are not quantitated or immunotyped. Slowly forming fibrin clots (as may occur in hemophilia) are distinguished from cryoprecipitates by their inability to redissolve on warming.(Lerner AB, Watson CJ: Studies of cryoglobulins. I. Unusual purpura associated with the presence of a high concentration of cryoglobulin [cold precipitatable serum globulin]. Am J Med Sci. 1947;214:410-415; Desbois AC, Cacoub P, Saadoun D: Cryoglobulinemia: An update in 2019. Joint Bone Spine. 2019 Nov;86(6):707-713. doi: 10.1016/j.jbspin.2019.01.016)

PDF Report

No

Day(s) and Time(s) Test Performed

Monday through Friday; 4 p.m.

Analytic Time

2 days

Maximum Laboratory Time

10 days

Specimen Retention Time

Negative: 7 days; Positive: until reported

Performing Laboratory Location

Rochester

Fees and 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 Regional Manager. For assistance, contact Customer Service.

Test Classification

This test has been cleared, approved or is exempt by the U.S. 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

82585

82595

86334-Immunofixation (if appropriate)

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
CRGSP	Cryo Panel, S and P	74352-6

Result ID	Test Result Name	Result LOINC Value
2685	Cryofibrinogen, P	11043-7
2684	Cryoglobulin, S	12201-0