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MAYO CLINIC LABORATORIES

Test Definition: F_12

Coagulation Factor XII Activity Assay, Plasma

Overview

Useful For

Diagnosing deficiency of coagulation factor XII

Determining cause of prolonged activated partial thromboplastin time

Special Instructions

- Coagulation Guidelines for Specimen Handling and Processing

Method Name

Optical Clot-Based

NY State Available

Yes

Specimen

Specimen Type

Plasma Na Cit

Ordering Guidance

Coagulation testing is highly complex, often requiring the performance of multiple assays and correlation with clinical information. For that reason, consider ordering a Coagulation Consultation.

Necessary Information

If priority specimen, mark request form, give reason, and request a call-back.

Specimen Required

Specimen Type: Platelet-poor plasma

Patient Preparation:

1. Patient **should not** be receiving anticoagulant treatment (eg, warfarin, heparin). If not possible for medical reasons, note on request.
 a. If medically feasible, for 4 to 6 hours before specimen collection, **do not** administer intravenous heparin.
 b. If medically feasible, for 10 to 14 days before specimen collection, **do not** administer subcutaneous heparin or warfarin**.**
2. Patient **should not** be receiving fibrinolytic agents (streptokinase, urokinase, tissue plasminogen activator [tPA]).
3. It is recommended that specimens be collected pretransfusion. If patient has been transfused, **a specimen should not be collected for 48 hours.**

Collection Container/Tube: Light-blue top (3.2% sodium citrate)

Submission Container/Tube: Plastic vial (polypropylene preferred)

Specimen Volume: 1 mL Platelet-poor plasma

Collection Instructions:

1. Specimen must be collected prior to factor replacement therapy
2. For complete instructions, see Coagulation Guidelines for Specimen Handling and Processing.
3. Centrifuge, transfer all plasma into a plastic vial, and centrifuge plasma again.
4. Aliquot plasma into a plastic vial, leaving 0.25 mL in the bottom of centrifuged vial.
5. Immediately freeze plasma (no longer than 4 hours after collection) at -20 degrees C or ideally, at or below -40 degrees C.

Additional Information:

1. Double-centrifuged specimen is critical for accurate results as platelet contamination may cause spurious results.
2. Each coagulation assay requested should have its own vial.

Forms

If not ordering electronically, complete, print, and send a Coagulation Test Request (T753) with the specimen.

Specimen Minimum Volume

Platelet-poor plasma: 0.5 mL

Reject Due To

Gross hemolysis	Reject
Gross lipemia	Reject
Gross icterus	Reject

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Plasma Na Cit	Frozen	14 days	

Clinical & Interpretive

Clinical Information

Factor XII is synthesized in the liver. Its biological half-life is 40 to 50 hours. Factor XII is a component of the contact activation system and is involved in both intrinsic pathway and fibrinolytic system.

Factor XII deficiency is often discovered when activated partial thromboplastin time is found to be unexpectedly long. The deficiency does not cause a known bleeding disorder.

An association between severe factor XII deficiency and thrombosis risk has been proposed but not proven.

Reference Values

Adults: 55-180%

Normal, full-term infants or healthy premature infants may have decreased levels (> or =15% to 20%), which may not

reach adult levels for 180 or more days postnatal.*
*See Pediatric Hemostasis References section in Coagulation Guidelines for Specimen Handling and Processing.

Interpretation
Acquired deficiency is associated with liver disease, nephritic syndrome, and chronic granulocytic leukemia.

Congenital homozygous deficiency: 20% activity

Congenital heterozygous deficiency: 20% to 50% activity

Cautions
Deficiencies of other contact activator proteins (prekallikrein, high molecular weight kininogen) can also cause prolonged activated partial thromboplastin time but do not cause clinical bleeding.

Clinical Reference
1. Renne T, Schmaier AH, Nickel KF, Blomback M, Maas C. In vivo roles of factor XII. Blood. 2012;120(22):4296-4303
2. Favaloro EJ, Lippi G, eds. Hemostasis and Thrombosis: Methods and Protocols. Humana Press; 2017

Performance

Method Description
The factor XII assay is performed on the Instrumentation Laboratory ACL TOP using the activated partial thromboplastin time (aPTT) method and a factor-deficient substrate. Patient plasma is combined and incubated with a factor XII-deficient substrate (normal plasma depleted of factor XII by immunoadsorption) and an aPTT reagent. After a specified incubation time, calcium is added to trigger the coagulation process in the mixture. Then the time to clot formation is measured optically at a wavelength of 671 nm.(Owen CA Jr, Bowie EJW, Thompson JH Jr. Diagnosis of Bleeding Disorders. 2nd ed. Little, Brown and Company; 1975; Cielsa B. Defects of plasma clotting factors. In: Hematology in Practice. 3rd ed. FA Davis; 2019:chap 17)

PDF Report
No

Day(s) Performed
Monday through Saturday

Report Available
1 to 3 days

Specimen Retention Time
7 days

Performing Laboratory Location
Mayo Clinic Laboratories - Rochester Main Campus

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 modified from the manufacturer's instructions. Its performance characteristics were determined by Mayo Clinic in a manner consistent with CLIA requirements. This test has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information

85280

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
F_12	Coag Factor XII Assay, P	3232-6

Result ID	Test Result Name	Result LOINC® Value
F_12	Coag Factor XII Assay, P	3232-6