MAYO CLINIC LABORATORIES

Test Definition: F_11

Coagulation Factor XI Activity Assay, Plasma

Overview

Useful For

Diagnosing deficiency of coagulation factor XI

Investigating prolonged activated partial thromboplastin time

Special Instructions

- Coagulation Guidelines for Specimen Handling and Processing

Method Name

Optical Clot-Based

NY State Available

No

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 XI is synthesized in the liver. Its biological half-life is 60 to 80 hours. Factor XI is a component of the intrinsic coagulation pathway and, when activated, activates factor IX to IXa.

Factor XI deficiency may cause prolonged partial thromboplastin time. Deficiency is associated with mild bleeding diathesis, but there is poor correlation between activity level and clinical bleeding. A relatively high incidence of congenital deficiency occurs among individuals of Ashkenazi Jewish descent (hemophilia C).

Reference Values

Adults: 55-150%

Normal, full-term infants or healthy premature infants may have decreased levels (> or =10%), 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 and, rarely, inhibitors.

Patients who are homozygous: <20% activity

Patients who are heterozygous: 20% to 60% activity

Cautions

Decreased plasma levels of factor XI do not correlate well with bleeding risk.

Clinical Reference

1. He R, Chen D, He S. Factor XI: hemostasis, thrombosis, and antithrombosis. Thromb Res. 2012;129(5):541-550
2. Martin-Salces M, Jimenez-Yuste V, Alvarez MT, Quintana M, Hernandez-Navarro F. Review: Factor XI deficiency: review and management in pregnant women. Clin Appl Thromb Hemost. 2010;16(2):209-213
3. Seligsohn U. Factor XI in haemostasis and thrombosis: past, present and future. Thromb Haemost. 2007;98(1):84-89
4. Santoro R, Prejano S, Iannaccaro P. Factor XI deficiency: a description of 34 cases and literature review. Blood Coagul Fibrinolysis. 2011;22(5):431-435
5. Favaloro EJ, Lippi G, eds. Hemostasis and Thrombosis: Methods and Protocols. Humana Press; 2017

Performance

Method Description

The factor XI 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 XI-deficient substrate (normal plasma depleted of factor XI 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; Meijer P, Verbruggen HW, Spannagi M: Clotting factors and inhibitors: Assays and interpretation. In: Kottke-Marchant K, ed. Laboratory Hematology Practice. Wiley Blackwell Publishing; 2012:435-446)

PDF Report

No

Day(s) Performed

Monday through Friday

Report Available

1 to 3 days

Specimen Retention Time

7 days

Performing Laboratory Location
Mayo Clinic Jacksonville Clinical Lab

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

85270

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
F_11	Coag Factor XI Assay, P	3226-8

Result ID	Test Result Name	Result LOINC® Value
F_11	Coag Factor XI Assay, P	3226-8