MAYO CLINIC LABORATORIES

Test Definition: F_10

Coagulation Factor X Activity Assay, Plasma

Overview

Useful For

Diagnosing deficiency of coagulation factor X, congenital or acquired

Evaluating hemostatic function in liver disease

Investigation of prolonged prothrombin time or 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.

Specimen Required

Supplies: Sarstedt Aliquot Tube, 5 mL (T914)
Collection Container/Tube: Light-blue top (3.2% sodium citrate)
Submission Container/Tube: 13-mm x 75-mm, 5-mL, plastic vial (polypropylene preferred)
Specimen Volume: 1 mL Platelet-poor plasma
Collection Instructions:
1. For complete instructions, see Coagulation Guidelines for Specimen Handling and Processing.
2. Within 4 hours of collection, centrifuge, transfer all plasma into a plastic vial, and centrifuge plasma again.
3. Aliquot plasma into a separate plastic vial, leaving 0.25 mL in the bottom of the centrifuged vial.
4. Immediately freeze plasma (no longer than 4 hours after collection) at -20 degrees C or, ideally, -40 degrees C or below.
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 X is a vitamin K-dependent serine protease that is synthesized in the liver. Its biological half-life is 24 to 48 hours. Factor X participates in both intrinsic and extrinsic pathways of coagulation (final common pathway) by serving as the enzyme (factor Xa) in the prothrombinase complex.

Congenital factor X deficiency is rare. Acquired deficiency is associated with liver disease, warfarin therapy, vitamin K deficiency, systemic amyloidosis, and inhibitors (rare). Deficiency may cause prolonged prothrombin time and activated partial thromboplastin time.

Reference Values

Adults: 70-150%

Normal, full-term newborn infants or healthy premature infants may have decreased levels (> or =15-20%), 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 more common than congenital deficiency.

Homozygous individuals: <25% activity

Heterozygous individuals: 25% to 50% activity

Cautions

Liver disease, warfarin therapy, or vitamin K deficiency may decrease factor X levels.

Clinical Reference

1. Girolami A, Scandellari R, Scapin M, Vettore S. Congenital bleeding disorders of the vitamin K-dependent clotting factors. Vitam Horm. 2008;78:281-374
2. Brenner B, Kuperman AA, Watzka M, Oldenburg J. Vitamin K-dependent coagulation factors deficiency. Semin Thromb Hemost. 2009;35(4):439-446
3. Menegatti M, Peyvandi F. Factor X deficiency. Semin Thromb Hemost. 2009;35(4):407-415
4. Girolami A, Ruzzon E, Tezza F, Scandellari R, Scapin M, Scarparo P. Congenital FX deficiency combined with other clotting defects or with other abnormalities: a critical evaluation of the literature. Haemophilia. 2008;14(2):323-328
5. Girolami A, Scarparo P, Scandellari R, Allemand E. Congenital factor X deficiencies with a defect only or predominantly in the extrinsic or in the intrinsic system: a critical evaluation. Am J Hematol. 2008;83(8):668-671
6. Favaloro EJ, Lippi G, eds. Hemostasis and Thrombosis, Methods and Protocols. Humana Press; 2017

Performance

Method Description

The factor X assay is performed on the Instrumentation Laboratory ACL TOP using the prothrombin time (PT) method and a factor-deficient substrate. Patient plasma is combined and incubated with a factor X-deficient substrate (normal plasma depleted of factor X by immunoadsorption). After a specified incubation time, a PT reagent 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. Second edition. Little, Brown and Company, Boston, MA, 1975; Meijer P, Verbruggen and Spannagi M: Chapter 33: Clotting factors and inhibitors: Assays and Interpretation. In Laboratory Hematology Practice. Edited by K Kottke-Marchant. Wiley Blackwell Publishing, 2012, pp 435-446)

PDF Report

No

Day(s) Performed

Monday through Friday

Report Available

1 to 3 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

85260

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
F_10	Coag Factor X Assay, P	3218-5

Result ID	Test Result Name	Result LOINC® Value
F_10	Coag Factor X Assay, P	3218-5