

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

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

Supplies: Sarstedt Aliquot Tube, 5 mL (T914)

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

Submission Container/Tube: Plastic vial

Specimen Volume: 1 mL **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 separate plastic vial leaving 0.25 mL in the bottom of centrifuged vial.
- 4. Freeze plasma immediately (no longer than 4 hours after collection) at -20 degrees C, or, ideally at or below -40



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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

0.5 mL

Reject Due To

| Gross | Reject |
|---------------|--------|
| hemolysis | |
| 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



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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, et al. 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 and 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; 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 Friday

Report Available

1 to 3 days

Specimen Retention Time

7 days

Performing Laboratory Location

Mayo Clinic Laboratories - Rochester Main Campus



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Fees & Codes

Fees

- Authorized users can sign in to <u>Test Prices</u> for detailed fee information.
- Clients without access to Test Prices can contact <u>Customer Service</u> 24 hours a day, seven days a week.
- Prospective clients should contact their account representative. For assistance, contact <u>Customer Service</u>.

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 |