

### 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:** Plastic vial

**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. Falavaro 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 immunoabsorption). 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.

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- 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