

Coagulation Factor IX Activity Assay, Plasma

## Overview

## **Useful For**

Diagnosing deficiencies, particularly hemophilia B (Christmas disease)

Assessing the impact of liver disease on hemostasis

Investigation of a prolonged activated partial thromboplastin time

## Testing Algorithm

For information see **Hemophilia Testing Algorithm** 

## **Special Instructions**

- Coagulation Guidelines for Specimen Handling and Processing
- Hemophilia Testing Algorithm

## **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: Patient must not be receiving Coumadin (warfarin) or heparin therapy.

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

Submission Container/Tube: Plastic vial

**Specimen Volume:** 1 mL **Collection Instructions:** 



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- 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. Freeze plasma immediately (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**

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 IX is a vitamin K-dependent serine protease synthesized in the liver and participates in the intrinsic coagulation pathway. Its biological half-life is 18 to 24 hours.

Congenital deficiency is inherited as an X-linked recessive bleeding disorder (hemophilia B). Severe deficiency (<1%) is characterized by hemarthroses, deep tissue bleeding, excessive bleeding with trauma, and ecchymoses.

Acquired deficiency is associated with liver disease, vitamin K deficiency, warfarin therapy, and inhibitors (rare).

## **Reference Values**

< or =6 months: Normal, full-term newborn infants or healthy premature infants may have decreased levels (> or =20%), which may not reach adult levels for 180 or more days postnatal.\* (Literature derived)

>6 months: 65-140%

<sup>\*</sup>See Pediatric Hemostasis References section in Coagulation Guidelines for Specimen Handling and Processing.



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## Interpretation

Acquired deficiency is more common than congenital.

Mild hemophilia B: 5% to 50% activity

Moderate hemophilia B: 1% to 5% activity

Severe hemophilia B: <1% activity

#### **Cautions**

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

## **Clinical Reference**

- 1. Barrowcliffe TW, Raut S, Sands D, Hubbard AR. Coagulation and chromogenic assays of factor VIII activity: general aspects, standardization, and recommendations. Semin Thromb Hemost. 2002;28(3):247-256
- 2. Franchini M, Lippi G, Favaloro EJ. Acquired inhibitors of coagulation factors: part II. Semin Thromb Hemost. 2012;38(5):447-453
- 3. Carcao MD. The diagnosis and management of congenital hemophilia. Semin Thromb Hemost. 2012;38(7):727-734
- 4. Favaloro EJ, Lippi G, eds. Hemostasis and Thrombosis: Methods and Protocols. Humana Press; 2017

## **Performance**

## **Method Description**

The factor IX 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 IX-deficient substrate (normal plasma depleted of factor IX 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



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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**

85250

## **LOINC®** Information

Test ID	Test Order Name	Order LOINC® Value
F_9	Coag Factor IX Assay, P	3187-2

Result ID	Test Result Name	Result LOINC® Value
F_9	Coag Factor IX Assay, P	3187-2