

## Overview

### Useful For

Diagnosing congenital deficiency of coagulation factor VII

Evaluating acquired deficiencies associated with liver disease, oral anticoagulant therapy, and vitamin K deficiency

Determining degree of anticoagulation with warfarin to correlate with level of protein C

Investigation of a prolonged prothrombin 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, we suggest ordering Coagulation Consultations.

### 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. (If not possible for medical reasons, note on request.)

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

**Submission Container/Tube:** Plastic vial

**Specimen Volume:** 1 mL

### 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. Freeze plasma immediately (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**

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 VII is a vitamin K-dependent serine protease synthesized in the liver. It is a component of the extrinsic coagulation scheme, measured by the prothrombin time. Plasma biological half-life is about 3 to 6 hours. Deficiency may result in a bleeding diathesis.

**Reference Values**

Adults: 65-180%

Normal, full-term newborn infants or healthy premature infants may have decreased levels (> or =20%) which increase within the first postnatal week but may not reach adult levels for > or =180 days postnatal.\*

\*See Pediatric Hemostasis References section in [Coagulation Guidelines for Specimen Handling and Processing](#)

**Interpretation**

Liver disease, vitamin K deficiency, or warfarin anticoagulation can cause decreased factor VII activity.

Newborn infants usually have levels 25% or more.

**Cautions**

Factor VII is the first vitamin K-dependent coagulation factor to decrease after starting warfarin therapy and one of the first to return to normal when anticoagulation is discontinued.

**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. doi:10.1016/S0083-6729(07)00014-3
2. Brenner B, Kuperman AA, Watzka M, Oldenburg J. Vitamin K-dependent coagulation factors deficiency. *Semin Thromb Hemost.* 2009;35(4):439-446. doi:10.1055/s-0029-1225766
3. Mariani G, Bernardi F. Factor VII deficiency. *Semin Thromb Hemost.* 2009;35(4):400-406. doi:10.1055/s-0029-1225762
4. Franchini M, Marano G, Pupells S, et al. Rare congenital bleeding disorders. *Ann Transl Med.* 2018;6(17):331. doi:10.21037/atm.2018.08.34

**Performance****Method Description**

The factor VII 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 VII-deficient substrate (normal plasma depleted of factor VII 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*. 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 Saturday

**Report Available**

1 to 3 days

**Specimen Retention Time**

7 days

**Performing Laboratory Location**

Mayo Clinic Laboratories - Rochester Main Campus

**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**

85230

**LOINC® Information**

Test ID	Test Order Name	Order LOINC® Value
F_7	Coag Factor VII Assay, P	3198-9
Result ID	Test Result Name	Result LOINC® Value
F_7	Coag Factor VII Assay, P	3198-9