

Overview

Useful For

Diagnosing congenital deficiencies (rare) of coagulation factor V

Evaluating acquired deficiencies associated with liver disease, factor V inhibitors, myeloproliferative disorders, and intravascular coagulation and fibrinolysis

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

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)

Specimen Type: Platelet-poor plasma

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 V is a vitamin K-independent protein synthesized in the liver and in other tissues (endothelium, megakaryocytes/platelets). In its thrombin-activated form (factor Va), it serves as an essential cofactor in the prothrombinase enzyme complex, which converts prothrombin to thrombin (the prothrombinase complex consists of the enzyme, activated factor X, factor Va cofactor, a phospholipid surface, and calcium).

Deficiency of factor V may cause prolonged prothrombin time and activated partial thromboplastin time and may result in a bleeding diathesis. Plasma biological half-life varies from 12 to 36 hours.

Platelets contain 20% to 25% of the factor V in blood. Factor V (also known as labile factor) is highly susceptible to proteolytic inactivation, with the potential for spuriously decreased assay results.

Reference Values

- >1 month: 70%-165%
- <1 month: Normal, full-term and premature newborn infants may have mildly decreased levels (> or =30% to 35%) which reach adult levels within 21 days postnatal.

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

Interpretation

Acquired deficiencies are much more common than congenital.

Patients that are congenitally deficient homozygous generally have activity levels less than or equal to 10% to 20%.

Patients that are congenitally deficient heterozygous generally have activity levels less than or equal to 50%.

Congenital deficiency may occur in combined association with factor VIII deficiency.

Cautions

Factor V (labile factor) is highly susceptible to proteolytic inactivation, with the potential for spuriously decreased assay results. In normal individuals, after freeze-thaw of citrate plasma, factor V activity typically may be 10% to 20% less than observed in a fresh plasma specimen, and in occasional individuals, a more marked decrease of factor V activity occurs. Normal results can be regarded as reliable, but decreased factor V activity results need to be correlated with other clinical and laboratory information. Repeat testing may be necessary.

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.* 200935(4):439-446
3. Asselta R, Peyvandi F. Factor V deficiency. *Semin Thromb Hemost.* 200935(4):382-389
4. Lippi G, Favaloro EJ, Montagnana M, et al: Inherited and acquired factor V deficiency. *Blood Coagul Fibrinolysis.* 2011 Apr;22(3):160-166
5. Spreafico M, Peyvandi F. Combined FV and FVIII deficiency. *Haemophilia.* 2008;14(6):1201-1208
6. Kottke-Marchant K, ed: *Laboratory Hematology Practice.* Wiley Blackwell Publishing; 2012
7. Favaloro EJ and Lippi G. eds. *Hemostasis and Thrombosis, Methods and Protocols.* Humana Press 2017

Performance

Method Description

The factor V 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 V-deficient substrate (normal plasma depleted of factor V 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 2 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

85220

LOINC® Information

| Test ID | Test Order Name | Order LOINC® Value |
|---------|------------------------|--------------------|
| FACTV | Coag Factor V Assay, P | 3193-0 |

| Result ID | Test Result Name | Result LOINC® Value |
|-----------|------------------------|---------------------|
| FACTV | Coag Factor V Assay, P | 3193-0 |