Overview

Useful For

Diagnosing hemophilia A

Diagnosing von Willebrand disease when measured with the von Willebrand factor (VWF) antigen and VWF activity

Diagnosing acquired deficiency states

Investigation of prolonged activated partial thromboplastin time

Testing Algorithm

See Hemophilia Testing Algorithm in Special Instructions.

Special Instructions

- Coagulation Studies
- Hemophilia Testing Algorithm

Method Name

Optical Clot-Based

NY State Available

Yes

Specimen

Specimen Type

Plasma Na Cit

Specimen Required


Specimen Type: Platelet-poor plasma

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

Submission Container/Tube: Plastic vial

Specimen Volume: 1 mL

Collection Instructions:

1. Spin down, remove plasma, and spin plasma again.

2. Freeze specimen immediately at < or =-40 degrees C, if possible.

Additional Information:

1. Double-centrifuged specimen is critical for accurate results as platelet contamination may cause spurious results.
2. Patient must not be receiving Coumadin or heparin therapy.

3. Each coagulation assay requested should have its own vial.

4. If priority specimen, mark request form, give reason, and request a call-back.

5. Not offered for detection of hemophilia carrier.

6. 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.

**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**

<table>
<thead>
<tr>
<th></th>
<th>Mild OK; Gross reject</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemolysis</td>
<td></td>
</tr>
<tr>
<td>Lipemia</td>
<td>Mild OK; Gross reject</td>
</tr>
<tr>
<td>Icterus</td>
<td>Mild OK; Gross reject</td>
</tr>
<tr>
<td>Other</td>
<td>NA</td>
</tr>
</tbody>
</table>

**Specimen Stability Information**

<table>
<thead>
<tr>
<th>Specimen Type</th>
<th>Temperature</th>
<th>Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plasma Na Cit</td>
<td>Frozen</td>
<td>14 days</td>
</tr>
</tbody>
</table>

**Clinical and Interpretive**

**Clinical Information**

Factor VIII is synthesized in the liver, and perhaps in other tissues. It is a coagulation cofactor which circulates bound to von Willebrand factor and is part of the intrinsic coagulation pathway. The biological half-life is 9 to 18 hours (average is 12 hours).

Congenital factor VIII decrease is the cause of hemophilia A which has an incidence of 1 in 10,000 and is inherited in a recessive sex-linked manner on the X chromosome. Severe deficiency (<1%) characteristically demonstrates as hemarthrosis, deep-tissue bleeding, excessive bleeding with trauma and ecchymoses.

Factor VIII may be decreased in von Willebrand disease. Acquired deficiency states also occur.

Antibodies specific for factor VIII are the most commonly occurring specific inhibitors of coagulation factors and can produce serious bleeding disorders (acquired hemophilia).

Factor VIII is highly susceptible to proteolytic inactivation, with the potential for spuriously decreased assay results.
Reference Values

Adults: 55-200%

Normal, full-term newborn infants or healthy premature infants usually have normal or elevated factor VIII.*

*See Pediatric Hemostasis References in Coagulation Studies in Special Instructions.

Interpretation

See Cautions.

Mild hemophilia A: 5% to 50%

Moderate hemophilia A: 1% to 5%

Severe hemophilia A: <1%

Congenital deficiency may also occur in combined association with factor V deficiency.

Liver disease usually causes an increase of factor VIII activity.

Acquired deficiencies of factor VIII have been associated with myeloproliferative or lymphoproliferative disorders (acquired von Willebrand disease; VWD), inhibitors of factor VIII (autoantibodies, post-partum conditions, etc.), and intravascular coagulation and fibrinolysis.

May be decreased with von Willebrand factor in VWD

Cautions

Factor VIII is a labile protein. Improper handling of a specimen may give a false result.

Factor VIII is highly susceptible to proteolytic inactivation, with the potential for spuriously decreased assay results. Normal results can be regarded as reliable, but decreased result needs to be correlated with other clinical and laboratory information. Repeat testing may be necessary.

Factor VIII activity in frozen-thawed plasma specimens may be 10% to 20% lower than if assayed in fresh specimens, even under optimum conditions of processing and transportation, or maybe even lower if these conditions are suboptimal.

Factor VIII rises in response to a number of factors, including pregnancy, estrogen therapy, stress, disease, etc.

Not useful for inferring carrier status in suspected female carriers of hemophilia A, unless it is below 50% of normal.

Clinical Reference


Performance

Method Description

The factor VIII assay is performed on the Beckman Coulter ACL TOP using the activated partial thromboplastin time (APTT) method and a factor deficient substrate. Patient plasma is combined and incubated with a factor VIII deficient substrate (normal plasma depleted of factor VIII by immunoabsorption) and an APTT reagent. After a specified incubation time, calcium is added to trigger the coagulation process in the mixture. At which time, 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. Boston, MA, Little, Brown and Company, 1975)

PDF Report

No

Day(s) and Time(s) Test Performed

Monday through Friday

Analytic Time

1 day

Maximum Laboratory Time

3 days

Specimen Retention Time

7 days

Performing Laboratory Location

Rochester

Fees and 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 Regional Manager. 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 U.S. Food and Drug Administration.

CPT Code Information

85240

LOINC® Information

<table>
<thead>
<tr>
<th>Test ID</th>
<th>Test Order Name</th>
<th>Order LOINC Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>F8A</td>
<td>Coag Factor VIII Activity Assay, P</td>
<td>3209-4</td>
</tr>
<tr>
<td>Result ID</td>
<td>Test Result Name</td>
<td>Result LOINC Value</td>
</tr>
<tr>
<td>-----------</td>
<td>------------------------------------------</td>
<td>--------------------</td>
</tr>
<tr>
<td>F8A</td>
<td>Coag Factor VIII Activity Assay, P</td>
<td>3209-4</td>
</tr>
</tbody>
</table>