Test Definition: EMICZ

Emicizumab, Modified One Stage Assay Factor VIII, Plasma

Overview

Useful For

Monitoring compliance or potential development of an antidrug antibody

This assay is **not indicated** for monitoring factor VIII infusions or for making a diagnosis of hemophilia.

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

For monitoring factor VIII infusions or diagnosing hemophilia, order F8A / Coagulation Factor VIII Activity Assay, Plasma.

Specimen Required

Specimen Type: Platelet-poor plasma

Patient Preparation: For at least 12 hours before specimen collection, the patient should not be given infusions of factor VIII concentrates.

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

Submission Container/Tube: 13-mm x 75-mm, 5-mL, plastic vial (polypropylene preferred)

Specimen Volume: 1 mL Platelet-poor plasma

Collection Instructions:

1. For complete instructions, see Coagulation Guidelines for Specimen Handling and Processing
2. Centrifuge, transfer all plasma into a plastic vial, and centrifuge plasma again.
3. Aliquot plasma into a plastic vial, leaving 0.25 mL in the bottom of centrifuged vial.
4. Immediately freeze plasma (no longer than 4 hours after collection) at -20 degrees C or, ideally, at -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 an Coagulation Test Request (T753) with the specimen.

Specimen Minimum Volume
Platelet-poor plasma: 0.5 mL

Reject Due To

All specimens will be evaluated at Mayo Clinic Laboratories for test suitability.

Specimen Stability Information

Specimen Type	Temperature	Time	Special Container
Plasma Na Cit	Frozen	42 days	

Clinical & Interpretive

Clinical Information
Emicizumab (Hemlibra) is a bispecific antibody directed toward factor IXa and factor X, bridging in close enough proximity to mimic and replace factor VIII. Emicizumab has been approved by the US Food and Drug Administration for prevention of bleeding in hemophilia A patients, both with and without inhibitors to factor VIII.

In clinical trials, clinical outcomes were achieved without the measurement of plasma emicizumab levels to inform and make management decisions. However, in selected clinical situations, measurement of drug level would be useful (eg, for patients experiencing break through bleeding episodes, if levels are not detectable or below the published [observed] ranges, this may imply noncompliance or development of an antidrug antibody).

Reference Values
<1 mcg/mL

Interpretation
Therapeutic ranges for plasma emicizumab concentrations have not been established. Trough plasma concentrations observed during clinical trials ranged between 35 and 55 micrograms/mL.

Cautions
The presence of endogenous and exogenous factor VIII (approximately > 10% [>0.1 IU/mL] by bovine chromogenic FVIII assay) will cause the emicizumab level to be falsely elevated.

Excess heparin and dilution contamination due to improper specimen collection through an intravenous access device may result in artifactually decreased results.

Aliquot tubes should be made of non-activating material, such as polypropylene.

Clinical Reference

1. Knight T, Callaghan MU. The role of emicizumab, a bispecific factor IXa- and factor X-directed antibody, for the prevention of bleeding episodes in patients with hemophilia A. Ther Adv Hematol. 2018;9(10):319-334. doi:10.1177/2040620718799997
2. Jenkins PV, Bowyer A, Burgess C, et al. Laboratory coagulation tests and emicizumab treatment A United Kingdom Haemophilia Centre Doctors' Organisation guideline. Haemophilia. 2020;26(1):151-155. doi:10.1111/hae.13903
3. Jonsson F, Schmitt C, Petry C, Mercier F, Frey N, Retout S. Exposure-response modeling of emicizumab for the prophylaxis of bleeding in hemophilia A patients with and without inhibitors against factor VIII. Poster PB0325 presented at: The XXVII Congress of the International Society on Thrombosis and Haemostasis. July 6-10, 2019; Melbourne, Australia
4. Pipie SW, Shima M, Lehle M, et al. Efficacy, safety and pharmacokinetics emicizumab prophylaxis given every 4 weeks in people with haemophilia (HAVEN 4): a multicenter, open-label, non-randomized phase 3 study. Lancet Haematol. 2019;6(6):e295-e305. doi:10.1016/S2352-3026(19)30054-7

Performance

Method Description

The emicizumab (Hemlibra) assay is a modification to the one stage factor VIII assay performed on the Instrumentation Laboratory (IL) ACL TOP using the activated partial thromboplastin time (IL SynthASil APTT) method and a factor-deficient substrate. Patient plasma is combined and incubated with a factor VIII-deficient substrate (Precision Biologic, normal plasma depleted of factor VIII 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 and interpolated against a drug specific calibration.(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 Friday

Report Available

1 to 7 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

80299

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
EMICZ	Emicizumab, modified OSA FVIII, P	99614-0

Result ID	Test Result Name	Result LOINC® Value
EMICZ	Emicizumab, modified OSA FVIII, P	99614-0