MAYO CLINIC LABORATORIES

Test Definition: FXIII

Factor XIII (13), Screen, Plasma

Overview

Useful For
Screening for factor XIII deficiency

Method Name
Only orderable as part of a profile. For more information see ALBLD / Bleeding Diathesis Profile, Limited, Plasma.

Clot-Based

NY State Available
Yes

Specimen

Specimen Type
Plasma Na Cit

Specimen Required
Only orderable as part of a profile. For more information see ALBLD / Bleeding Diathesis Profile, Limited, Plasma.

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 XIII is found in plasma and platelets. Plasma factor XIII consists of 2 A-subunits and 2 B-subunits; platelet factor XIII consists of only 2 A-subunits. After factor XIII is activated by thrombin, it catalyzes the formation of peptide bonds between adjacent molecules of fibrin monomers, thus conferring mechanical and chemical stability to the fibrin clot. Fibrin that is not covalently cross-linked exhibits an increased susceptibility to fibrinolysis.

Congenital factor XIII deficiency is an autosomal recessive bleeding disorder. Homozygous individuals (FXIII <1%) experience soft tissue hemorrhage, hemarthrosis, and hematomas. Typically, affected patients suffer from delayed bleeding occurring 24 to 48 hours after the initial hemostatic response to an injury. In newborns, bleeding from the umbilical stump may occur after separation of the umbilical cord, as well as intracranial bleeding. Poor wound healing and abnormal scar formation is also observed. Heterozygous carriers may be asymptomatic; however, females may experience recurrent spontaneous abortions.

Acquired factor XIII deficiency is rare and typically occurs as a result of development of autoantibodies. These patients develop adult-onset bleeding.

Reference Values

Only orderable as part of a profile. For more information see ALBLD / Bleeding Diathesis Profile, Limited, Plasma.

Normal

Interpretation

Normally, no clot dissolution is observed after 30 minutes in 1% monochloroacetic acid. Clot dissolution begins once factor XIII levels are reduced to 1% or 2%.

Cautions

A normal factor XIII screen does not exclude the possibility of mild heterozygous deficiency of factor XIII.

Clinical Reference

1. Anwar R, Miloszewski KJ. Factor XIII deficiency. Br J Haematol 1999;107(3):468-484
2. Kottke-Marchant K. Performance and interpretation of routine coagulation assays. In: Laboratory Hematology Practice. Wiley Blackwell Publishing; 2012:420-434
3. Hoffman R, Benz EJ Jr, Siberstein LE, et al. Hematology: Basic Principles and Practice. 7th ed. Elsevier; 2018

Performance

Method Description

The covalent stabilization of fibrin by thrombin-activated factor XIII (XIIIa) is the final event in the coagulation of blood. Plasma factor XIII (fibrin-stabilizing factor) zymogen consists of 2 "A" and 2 "B" subunits, the "A" subunits containing an active-center sulfydryl grouping mediating the transamidase activity of the enzyme. The action of thrombin converts fibrinogen to fibrin monomer causing the monomeric molecules to polymerize and be held together by noncovalent hydrogen bonds. These bonds can be broken by 5 M urea or weak acid solutions in the absence of factor XIII. Subsequent to fibrin polymerization by hydrogen bonding, the action of factor XIII results in the formation of covalent bonds that cannot be broken by 5 M urea or weak acid solutions as used in this procedure (1% monochloroacetic acid). Dissolution of a clot by urea or monochloroacetic acid is therefore a qualitative test for factor XIII activity.(Owen CA Jr, Bowie EJW, Thompson JH Jr. Diagnosis of Bleeding Disorders. 2nd ed. Little, Brown and Company; 1975; Meijer P, Verbruggen HW, Spannagl M. Clotting factors and inhibitors: Assays and Interpretation. In: Kottke-Marchant K, David BH. Laboratory Hematology Practice. Wiley Blackwell Publishing; 2012:435-446)

PDF Report
No

Day(s) Performed
Monday through Friday

Report Available
1 to 4 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 was developed and its performance characteristics determined by Mayo Clinic in a manner consistent with CLIA requirements. It has not been cleared or approved by the US Food and Drug Administration.

CPT Code Information
85291

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
FXIII	Factor XIII(13),Scrn	3241-7

Result ID	Test Result Name	Result LOINC® Value
9068	Factor XIII(13),Scrn	3241-7