Test Definition: PNP

Platelet Neutralization Procedure, Plasma

Overview

Useful For

Aiding in the confirmation or exclusion of the presence of a lupus anticoagulant (LAC) inhibitor when used in conjunction with other appropriate coagulation tests.

Aids in differentiating deficiencies or inhibitors of specific coagulation factors (eg, factor VIII inhibitor) from LAC inhibitors

Method Name

Only orderable as a reflex. For more information, see:
ALUPP / Lupus Anticoagulant Profile, Plasma
ALBLD / Bleeding Diathesis Profile, Limited, Plasma
AATHR / Thrombophilia Profile, Plasma and Whole Blood
APROL / Prolonged Clot Time Profile, Plasma
ADIC / Disseminated Intravascular Coagulation/Intravascular Coagulation and Fibrinolysis (DIC/ICF) Profile, Plasma

Optical Clot-Based

NY State Available

Yes

Specimen

Specimen Type

Plasma Na Cit

Specimen Required

Only orderable as a reflex. For more information see:
ALUPP / Lupus Anticoagulant Profile, Plasma
ALBLD / Bleeding Diathesis Profile, Limited, Plasma
AATHR / Thrombophilia Profile, Plasma and Whole Blood
APROL / Prolonged Clot Time Profile, Plasma
ADIC / Disseminated Intravascular Coagulation/Intravascular Coagulation and Fibrinolysis (DIC/ICF) Profile, Plasma

Specimen Stability Information: Frozen 2 years

Specimen Minimum Volume

See Specimen Required

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		

Clinical & Interpretive

Clinical Information

Prolonged clotting times may be due to a variety of factors including the presence of clotting factor deficiencies, factor inhibitors, and lupus anticoagulants (antiphospholipid antibodies).

When a prolonged activated partial thromboplastin time (APTT) demonstrates inhibition on mixing with normal plasma indicative of presence of an inhibitor, the platelet neutralization procedure (PNP) is useful in determining if this inhibition is due to presence of a lupus anticoagulant (LAC).

The PNP involves the addition of washed, freeze-thawed platelets or buffer to the patient's plasma. An APTT is done on both mixtures and the clotting times are compared. Additional phospholipid supplied by the PNP reagent can absorb LAC, thereby diagnostically shortening the APTT.

For performance and interpretation of the PNP, the baseline APTT should be significantly prolonged (preferably at least 3 to 5 seconds above the upper limit of the reference range), and APTT inhibition must be demonstrated or suggested by a mixing study with normal plasma (ie, 1:1 mix fails to shorten into the normal range).

Reference Values

Only orderable as a reflex. For more information see:
ALUPP / Lupus Anticoagulant Profile, Plasma
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AATHR / Thrombophilia Profile, Plasma and Whole Blood
APROL / Prolonged Clot Time Profile, Plasma
ADIC / Disseminated Intravascular Coagulation/Intravascular Coagulation and Fibrinolysis (DIC/ICF) Profile, Plasma

An interpretive report will be provided.

Interpretation

Interpretation of the results of the platelet neutralization procedure (PNP) test is complex and needs to be performed in the context of results of mixing study of the prolonged activated partial thromboplastin time (APTT), the APTT PNP and the buffer control APTT, as well as results of other coagulation tests (eg, prothrombin time and thrombin time as well as available clinical information).

Plasma containing lupus anticoagulant (LAC) will demonstrate shortening of the PNP Platelets APTT by 2 or more seconds when compared to the baseline PNP Saline APTT.

Cautions

The presence of heparin will cause a false-positive platelet neutralization procedure (PNP). The distinction is usually not difficult because the presence of heparin can be detected by a prolonged thrombin time and normal reptilase time.

The presence of coagulation factor V inhibitors or deficiency may also produce a false-positive PNP result. This can be suspected if the prothrombin time (PT) is significantly prolonged and may merit additional testing.

The presence of other coagulopathies or interfering conditions (causing false-positive PNP interpretation) should be evaluated by results of other tests (PT, thrombin time, and other assays if needed) and by available clinical information.

Clinical Reference

1. Brandt JT, Triplett DA, Alving B, Scharrer I. Criteria for the diagnosis of lupus anticoagulants: an update. Thromb Haemost. 1995;74(5):1185-1190
2. Brandt JT, Barna LK, Triplett DA. Laboratory identification of lupus anticoagulants: results of the second international workshop for identification of lupus anticoagulants. Thromb Haemost. 1995;74(6):1597-1603
3. Gastineau DA, Kazmier FJ, Nichols WL, Bowie EJ. Lupus anticoagulant: an analysis of the clinical and laboratory features of 219 cases. Am J Hematol. 1985;19(3):265-275
4. Cardel LK, Fisher PK, Heit JA, et al. Detection of lupus anticoagulants and anticardiolipin antibodies: prevalence of positive test in 665 patients. Thromb Haemost. 1993;69:1221
5. Kottke-Marchant K, Davis BH. Laboratory Hematology Practice. Wiley Blackwell Publishing; 2012
6. Clinical and Laboratory Standards Institute (CLSI). Laboratory Testing for the Lupus Anticoagulant; Approved Guideline. CLSI document H60-A. CLSI; 2014

Performance

Method Description

The platelet neutralization procedure (PNP) assay is performed on the Instrumentation Laboratory ACL TOP. Two cuvette wells are tested: 1 containing patient plasma and buffer and the other containing patient plasma and PNP platelet reagent. The contents of each cuvette well are combined and incubated with an activated partial thromboplastin time reagent containing phospholipid, a negatively charged contact factor activator, and buffer. After a specified incubation time, calcium is added to trigger the coagulation process in the mixture. Subsequently, the time to clot formation is measured optically using a wavelength of 671 nm for each cuvette well.(Package insert: Cryocheck Platelet Lysate. Precision Biologic Inc.; 02/14/2011)

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 has been cleared, approved, or is exempt by the US Food and Drug Administration and is used per manufacturer's instructions. Performance characteristics were verified by Mayo Clinic in a manner consistent with CLIA requirements.

CPT Code Information

85597

LOINC® Information

Test ID	Test Order Name	Order LOINC® Value
PNP	Platelet Neutralization Procedure	103620-1

Result ID	Test Result Name	Result LOINC® Value
PNPPL	Platelet Neutralization Procedure	75506-6
PNPSA	PNP Buffer Control	103619-3