Test Definition: DRV3

DRVVT Confirmation

Overview

Useful For

Confirming the presence or absence of lupus anticoagulants (LA)

Identifying LA that do not prolong the activated partial thromboplastin time (APTT)

Evaluating unexplained prolongation of the APTT or prothrombin time clotting tests

Distinguishing LA from a specific coagulation factor inhibitor or coagulation factor deficiencies

Method Name

Only orderable as part of a reflex. For more information see:

ALUPP / Lupus Anticoagulant Profile, Plasma

ALBLD / Bleeding Diathesis Profile, Limited, Plasma

AATHR / Thrombophilia Profile, Plasma

APROL / Prolonged Clot Time Profile, Plasma

ADIC / Disseminated Intravascular Coagulation/Intravascular Coagulation and Fibrinolysis (DIC/ICF) Profile, Plasma

NY State Available

Yes

Specimen

Specimen Type

Plasma Na Cit

Additional Testing Requirements

Serum anticardiolipin antibody testing (CLPMG / Phospholipid [Cardiolipin] Antibodies, IgG and IgM, Serum) and anti-beta-2 glycoprotein I (B2GMG / Beta-2 Glycoprotein 1 Antibodies, IgG and IgM, Serum) antibody testing should also be performed in conjunction with coagulation-based testing for LA to enhance detection of different types of antiphospholipid antibodies.

Specimen Required

Only orderable as part of a reflex. For more information see:

ALUPP / Lupus Anticoagulant Profile, Plasma

ALBLD / Bleeding Diathesis Profile, Limited, Plasma

AATHR / Thrombophilia Profile, Plasma

APROL / Prolonged Clot Time Profile, Plasma

ADIC / Disseminated Intravascular Coagulation/Intravascular Coagulation and Fibrinolysis (DIC/ICF) Profile, 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 and Interpretive

Clinical Information

Dilute Russell viper venom time (DRVVT) confirmation is only performed when the DRVVT screen is abnormally prolonged. Refer to DRV1 / Dilute Russell Viper Venom Time (DRVVT), Plasma for interpretation of results.

Reference Values

Only orderable as part of a reflex. For more information see:

ALUPP / Lupus Anticoagulant Profile, Plasma

ALBLD / Bleeding Diathesis Profile, Limited, Plasma

AATHR / Thrombophilia Profile, Plasma

APROL / Prolonged Clot Time Profile, Plasma

ADIC / Disseminated Intravascular Coagulation/Intravascular Coagulation and Fibrinolysis (DIC/ICF) Profile, Plasma

<1.20

Normal ranges for children: not clearly established, but similar to normal ranges for adults, except for newborn infants whose results may not reach adult values until 3 to 6 months of age.

Interpretation

Dilute Russell viper venom time (DRVVT) screen ratio (<1.20):

A normal DRVVT screen ratio (<1.20) indicates that lupus anticoagulant (LA) is not present or not detectable by this method (but might be detected with other methods).

An abnormal DRVVT screen ratio (DRVVT screen ratio >1.20) may suggest presence of LA, however, other possibilities include:

-Deficiencies or dysfunction of factors I (fibrinogen), II, V, or X, congenital or acquired

-Inhibitors of factor V, or occasionally by inhibitors of factor VIII, or other specific or nonspecific inhibitors

-Anticoagulation therapy effects (see Cautions)

Further evaluation consists of performing mixing studies with an equal volume of normal pooled plasma (DRVVT 1:1 mix) to investigate the possibility of coagulation factor deficiency (suggested by DRVVT mix ratio <1.20) and to evaluate inhibition (suggested by DRVVT mix ratio > or =1.20) and mixing patient plasma with DRVVT reagent enriched in phospholipid (DRVVT confirmatory reagent) (DRVVT mix and DRVVT confirmation ratios).

Possible combination of results include the following:

-DRVVT screen ratio > or =1.20, DRVVT mix ratio <1.20, and DRVVT confirmation ratio <1.20:

No evidence of LA. These data may reflect anticoagulation therapy effects or other (congenital or acquired) coagulopathy.

-DRVVT screen ratio > or =1.20, DRVVT mix ratio > or =1.20, and DRVVT confirmation ratio <1.20:

The prolonged and inhibited DRVVT (DRVVT screen and mix ratios) may reflect presence of a specific factor inhibitor (eg, factor V inhibitor), anticoagulation therapy effects or other nonspecific inhibitors as can be seen with monoclonal protein disorders, lymphoproliferative disease etc. Although LA cannot be conclusively excluded, the DRVVT confirmation ratio of < or =1.20 makes this less likely.

-DRVVT screen ratio > or =1.20, DRVVT mix ratio <1.20, and DRVVT confirmation ratio > or =1.20:

Although mixing study of the prolonged DRVVT screen and mix ratios provides no evidence of inhibition, additional phospholipid shortens the clotting time (DRVVT confirmation ratio), suggesting presence of LA.

-DRVVT screen ratio > or =1.20, DRVVT mix ratio > or =1.20, and DRVVT confirmation ratio > or =1.20:

The data are consistent with presence of LA, provided anticoagulant effect can be excluded (see Cautions).

Additional tests to evaluate abnormal DRVVT results include activated partial thromboplastin time (APTT), prothrombin time (PT), and thrombin time. Abnormalities observed with these tests may be further evaluated with normal plasma mixing studies, the platelet neutralization procedure (for APTT), and coagulation factor assays may sometimes be needed. All of these reflexive testing procedures, together with Coagulation Consultant interpretation, are included in Mayo Clinic's Coagulation Consultation test panels:

ALUPP / Lupus Anticoagulant Profile, Plasma

ALBLD / Bleeding Diathesis Profile, Limited, Plasma

AATHR / Thrombophilia Profile, Plasma

APROL / Prolonged Clot Time Profile, Plasma

ADIC / Disseminated Intravascular Coagulation/Intravascular Coagulation and Fibrinolysis (DIC/ICF) Profile, Plasma

DRVVT assays ordered as a single, stand-alone test should be interpreted within patient clinical context and close attention to medication use by patient (see Cautions).

Cautions

Residual platelets in frozen-thawed plasma can decrease sensitivity and specificity of lupus anticoagulants (LA) testing (false-negative results). Specimens that are to be frozen before testing must be centrifuged twice to remove as many of the platelets as possible before freezing.

Anticoagulation therapy effects such as warfarin (especially when the effect is supratherapeutic), excess heparin, direct thrombin inhibitors (DTI) (eg, dabigatran [Pradaxa]), argatroban [Ancova], bivalirudin [Angiomax]), direct factor Xa inhibitors (eg, rivaroxaban [Xarelto], apixaban [Eliquis], edoxaban [Savaysa]) may result in a false-positive assay performance for LA. Clinical correlation and repeat testing remote (>1 week) from anticoagulation therapy is suggested.

Although the dilute Russell viper venom time (DRVVT) reagents contain a heparin inhibitor (Polybrene) that is sufficient for neutralization of heparin (up to 1-2 U/mL), the results may not necessarily represent what would occur if no heparin were present in the specimen. Therefore, DRVVT results from heparinized plasma should be interpreted with caution.

Excess heparin or inhibitors of factors V or VIII may cause false-positive results of LA testing, depending on the types of coagulation testing performed.

LA diagnosis does not have definite predictive value for associated clinical complications such as thromboembolic problems or fetal loss.

The DRVVT test will not detect all LAs. Some LAs may only be detectable by other tests such as the Staclot LA, activated partial thromboplastin time, and platelet neutralization procedure, or other methods.

Persistence of LA over time (12 weeks or more between positive testing results) is a clinically important criterion for the antiphospholipid antibody syndrome diagnosis.

Clinical Reference

1. Proven A, Bartlett RP, Moder KG, et al: Clinical importance of positive test results for lupus anticoagulant and anticardiolipin antibodies. Mayo Clin Proc 2004 April;79(4):467-475

2. 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 Jul;19(3):265-275

3. Brandt JT, Triplett DA, Alving B, Sharrer I: Criteria for the diagnosis of lupus anticoagulant: an update. On behalf of the Subcommittee on Lupus Anticoagulant/Antiphospholipid Antibody of the Scientific and Standardisation Committee of the ISTH. Thromb Haemost 1995 Oct;74(4);1185-1190

4. Arnout J, Vermylen J: Current status and implications of autoimmune antiphospholipid antibodies in relation to thrombotic disease. J Thromb Haemost 2003 May;1(5):931-942

5. Pengo V, Tripodi A, Reber G, et al: Update of the guidelines for lupus anticoagulant detection. Subcommittee on Lupus Anticoagulant/Antiphospholipid Antibody of the Scientific and Standardisation Committee of the International Society on Thrombosis and Haemostasis. J Thromb Haemost 2009;7:1737-1740. doi: 10.1111/j.1538-7836.2009.03555.x

6. CLSI Laboratory Testing for Lupus Anticoagulant; Approved Guideline. CLSI document H60-A. Wayne, PA: Clinical and Laboratory Standards Institute; 2014

Performance

Method Description

The dilute Russell viper venom time (DRVVT) confirmation assay is performed on the Instrumentation Laboratory ACL TOP. The assay is performed by incubating patient plasma for a specified time, then combining it with a DRVVT confirm reagent containing Russell viper venom, excess phospholipids, antiheparin agents, calcium, buffers, and stabilizers to trigger the coagulation process. The time to clot formation is measured optically using a wavelength of 671 nm.

The DRVVT confirmation is converted to a ratio by dividing the DRVVT screen clotting time by the DRVVT confirmation clotting time.(Package insert: CRYO LASURE, PrecisionBioLogic, Inc., Dartmouth, NS, Insert I-022 Rev.12)

PDF Report

No

Day(s) Performed

Monday through Friday

Report Available

2 to 5 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 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

85613

LOINC® Information

Test ID	Test Order Name	Order LOINC Value
DRV3	DRVVT Confirmation	50410-0

Test Definition: DRV3

DRVVT Confirmation

Result ID	Test Result Name	Result LOINC Value
RVCR3	DRVVT Confirm Ratio	50410-0