# Test Definition: APMSC

APTT Mix 1:1

## Overview

### Useful For

Screening for certain coagulation factor deficiencies and abnormalities (eg, factor VIII, IX, XI, or XII).

Detection of coagulation inhibitors such as lupus anticoagulant, antiphospholipid antibodies, specific factor inhibitors, and nonspecific 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

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

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

The activated partial thromboplastin time (APTT) mix is only performed when the APTT is abnormally prolonged. Refer to APTSC / Activated Partial Thromboplastin Time (APTT), Plasma for interpretation of results.

The APTT mixing test is used to evaluate a prolonged APTT test result, especially when mixing test results are combined with results of other coagulation tests and clinical information, to assist in differentiating coagulation factor deficiencies from coagulation inhibitors.

### Reference Values

Only orderable as 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

25-37 seconds

### Interpretation

Prolongation of the activated partial thromboplastin time (APTT) can occur as a result of deficiency of 1 or more coagulation factors (acquired or congenital in origin), or the presence of an inhibitor of coagulation such as heparin, a lupus anticoagulant, a "nonspecific" inhibitor such as a monoclonal immunoglobulin, or a specific coagulation factor inhibitor.

The APTT mixing study, using equal volumes of patient and normal pool plasma, may be performed on specimens with a prolonged APTT to assist in differentiating coagulation factor deficiencies from coagulation inhibitors of all types (1-4). Correction of the APTT mix to within the normal reference range usually indicates a coagulation factor deficiency (normal plasma in the mixture ensures at least 50% activity of all coagulation factors). If the prolonged APTT is due to an inhibitor (eg, specific coagulation factor inhibitor, lupus anticoagulant, heparin), the APTT mix typically fails to correct a prolonged APTT. However, the presence of a weak inhibitor may be missed by the APTT mixing study.

Accurate interpretation of both APTT and APTT mixing study results may often require additional testing. For example, the thrombin time (TT) test is helpful for identifying or excluding the presence of heparin, the platelet neutralization procedure (PNP, using a modified APTT method) for identifying or excluding lupus anticoagulant, the

prothrombin time (PT) and dilute Russell viper venom time (DRVVT) for further assessment of the common procoagulant pathway, and coagulation factor assays to detect and identify deficient or abnormal factors. These assays are available as components of reflexive and interpretive testing panels in the Special Coagulation Laboratory (eg, APROL / Prolonged Clot Time Profile, Plasma).

Shortening of the APTT usually reflects either elevation of factor VIII activity secondary to acute or chronic illness or inflammation, or spurious results from suboptimal venipuncture, specimen collection or processing. A normal or shortened APTT result does not exclude a hemostatic defect; and specific clotting factor assays should be performed despite a normal APTT when there is clinical impression of bleeding diathesis.

### Cautions

For diagnostic activated partial thromboplastin time (APTT) testing, other than heparin therapeutic monitoring, specimens should not have any residual heparin present.

Mild coagulation factor deficiency may not result in prolongation of the APTT. APTT testing will not detect all lupus anticoagulants or coagulation inhibitors.

Lipemic specimens may interfere with the instrument clot detection mechanism.

APTT mixing studies have no utility when the patient APTT is normal.

### Clinical Reference

1. Miletich JP: Activated partial thromboplastin time. In Williams Hematology. Fifth edition. Edited by E Beutler, MA Lichtman, BA Coller, TJ Kipps. New York, McGraw-Hill, 1995, pp L85-86

2. Greaves M, Preston FE: Approach to the bleeding patient. In Hemostasis and Thrombosis: Basic Principles and Clinical Practice. Fourth edition. Edited by RW Colman, J Hirsh, VJ Marder, et al: Philadelphia, JB Lippincott Co, 2001, pp 1197-1234

3. Kaczor, DA, Bickford NN, Triplett DA: Evaluation of different mixing study reagents and dilution effect in lupus anticoagulant testing. Am J Clin Pathol 1991;95:408-411

4. Brandt JT, Triplett DA, Alving B, Scharrer I: Criteria for the diagnosis of lupus anticoagulants: an update. Thromb Haemost 1995;74(5):1185-1190

5. Olson JD, Arkin CF, Brandt JT, et al: Laboratory monitoring of heparin therapy. Arch Pathol Lab Med 1998;122:782-798

## Performance

### Method Description

The activated partial thromboplastin time (APTT) mix assay is performed on the Instrumentation Laboratory ACL TOP. Patient plasma is mixed in a 1:1 ratio with normal pooled plasma then combined and incubated with an APTT 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.(Package insert: HemilsIL SynthASil Instrumentation Laboratory Company, Lexington, MA, R4, 09/2006)

### PDF Report

No

### Day(s) and Time(s) Test Performed

Monday through Friday

### Analytic Time

2 hours

### 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

85732

### LOINC® Information

| Test ID | Test Order Name | Order LOINC Value |
|---|---|---|
| APMSC | APTT Mix 1:1 | 5946-9 |

| Result ID | Test Result Name | Result LOINC Value |
|---|---|---|
| APMSC | APTT Mix 1:1 | 5946-9 |