MAYO CLINIC LABORATORIES

# Test Definition: APTTP

Activated Partial Thromboplastin Time, Plasma

## Overview

### Useful For

Monitoring heparin therapy (unfractionated heparin)

Screening for certain coagulation factor deficiencies

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

### Method Name

Coagulometric (Turbidimetric)

### NY State Available

Yes

## Specimen

### Specimen Type

Plasma Na Cit

### Ordering Guidance

The primary method for therapeutic heparin monitoring is the heparin anti-Xa assay. Order HEPTP / Heparin Anti-Xa Assay, Plasma.

### Specimen Required

**Specimen Type:** Platelet-poor plasma
**Collection Container/Tube:** Light-blue top (3.2% sodium citrate)
**Submission Container/Tube:** Plastic vial
**Specimen Volume:** 1 mL
**Collection Instructions:**
1. Centrifuge, remove plasma and centrifuge plasma again.
2. Aliquot plasma into plastic vial leaving 0.25 mL in the bottom of centrifuged vial.
**Additional Information:** Double-centrifuged specimen is critical for accurate results as platelet contamination may cause spurious results.

### Specimen Minimum Volume

0.5 mL

### Reject Due To

| | |
|---|---|
| Gross hemolysis | Reject |

| | |
|---|---|
| Gross lipemia | OK |
| Gross icterus | OK |

### Specimen Stability Information

| Specimen Type | Temperature | Time | Special Container |
|---|---|---|---|
| Plasma Na Cit | Frozen (preferred) | 30 days | |
| | Ambient | 4 hours | |

## Clinical & Interpretive

### Clinical Information

The activated partial thromboplastin time (APTT) assay is used as a screening test to evaluate the overall integrity of the intrinsic/common coagulation pathway and to monitor patients on heparin therapy.

This test reflects the activities of most of the coagulation factors in the intrinsic and common procoagulant pathway, but not the extrinsic procoagulant pathway, which includes factor VII and tissue factor, nor the activity of factor XIII (fibrin stabilizing factor).

### Reference Values

25-37 seconds

### Interpretation

Prolongation of the activated partial thromboplastin time (APTT) can occur as a result of deficiency of one 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. Prolonged clotting times may also be observed in cases of fibrinogen deficiency, liver disease, and vitamin K deficiency.

Shortening of the APTT usually reflects either elevation of factor VIII activity in vivo that most often occurs in association with acute or chronic illness or inflammation, or spurious results associated with either difficult venipuncture and specimen collection or suboptimal specimen processing.

### Cautions

Activated partial thromboplastin time (APTT) results may be affected by many commonly administered drugs and should be considered as a potential source of unexpected abnormal results.

APTT testing will not detect all lupus anticoagulants, antiphospholipid antibodies, or coagulation inhibitors. SynthASil reagent is reportedly sensitive to decreased concentration of intrinsic factors resulting in an abnormal APTT value when factors VIII, IX, XI, and XII levels were in the 35% to 60% range.

Mixing studies may be indicated to further evaluate specimens with an unexplained prolonged APTT.

### Supportive Data

The activated partial thromboplastin time (APTT) reference interval of 25 to 37 seconds was determined by verifying the IL package insert.

### Clinical Reference

1. Clinical and Laboratory Standards Institute (CLSI). One-stage PT and APTT test; Approved Guideline Second Edition. H47-A2, 2008
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. Boender J, Kruip MJ, Leebeek FW: A Diagnostic Approach to Mild Bleeding Disorders. J Thromb Haemost 2016;Aug;14(8):1507-1516. doi: 10.1111/jth.13368

## Performance

### Method Description

Coagulometric (turbidimetric) clot detection is based on the principle that light passing through a medium in which fibrinogen is converted to fibrin is absorbed by the fibrin strands. Light at 671 nm is transmitted through a sample onto a photodetector, which is positioned 180 degrees to the source. Light absorption increases as fibrin clot formation progresses. Consequently, light transmittance through the sample continuously decreases and is measured by the photodetector. The corresponding electrical signal output from the photodetector changes according to the detected light. The signal output is processed via software through a series of algorithms to determine the clot point.

In this test, the incubation of plasma sample with an optimal quantity of phospholipid, a negatively charged contact activator, and buffer initiates the activation of the intrinsic coagulation pathway. After incubation at 37 degrees C, calcium is added to trigger the coagulation process and the time required for clot formation is measured. The activated partial thromboplastin included in the SynthASil kit is a liquid buffered reagent that contains synthetic phospholipid for optimal platelet-like activity and highly defined nonsettling colloidal silica for optimal activation of the contact phase of coagulation.(Package insert: HemosIL SynthASil; IL ACL TOP Operator's Manual. Instrumentation Laboratory, Bedford, MA. R11. 06/2017)

### PDF Report

No

### Day(s) Performed

Monday through Sunday

### Report Available

Same day/1 day

### Specimen Retention Time

24 hours

### 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

85730

### LOINC® Information

| Test ID | Test Order Name | Order LOINC® Value |
|---|---|---|
| APTTP | Activated Partial Thrombopl Time, P | 14979-9 |

| Result ID | Test Result Name | Result LOINC® Value |
|---|---|---|
| APTTP | Activated Partial Thrombopl Time, P | 14979-9 |