
Lab Dept: Coagulation

Test Name: PTT

General Information

Lab Order Codes: PTT

Synonyms: APTT; Partial Thromboplastin Time; Activated PTT

CPT Codes: 85730 – Thromboplastin time, partial (PTT); plasma or whole blood

Test Includes: PTT reported in seconds.

Logistics

Test Indications: Useful for screening of the intrinsic and common pathways in the coagulation system (factors II, V, VIII, IX, X, XI and XII); screening for dysfibrinogenemia disseminated intravascular coagulation (DIC), congenital hypofibrinogenemia K deficiency, HMWK deficiency and prekallikrein deficiency.

Lab Testing Sections: Coagulation

Phone Numbers: MIN Lab: 612-813-6280

STP Lab: 651-220-6550

Test Availability: Daily, 24 hours; Testing performed at Minneapolis and St. Paul Laboratories.

Turnaround Time: 2 hours

Special Instructions: Deliver immediately to the Laboratory

Specimen

Specimen Type: Whole blood

Container: Light Blue top (Buffered Na Citrate 3.2%) tube

Draw Volume: 1.8 mL blood (in 2 mL tube) or 2.7 mL blood (in a 3 mL tube).

Processed Volume: Minimum 0.9 mL plasma

Collection:

- A clean venipuncture is essential, avoid foaming.
- Entire sample must be collected with single collection, pooling of sample is unacceptable.
- Capillary collection is unacceptable.
- Patient's with a hematocrit level >55% must have a special tube made to adjust for the hematocrit; contact lab for a special tube.
- Mix thoroughly by gentle inversion. Deliver immediately to the laboratory at room temperature via courier or pneumatic tube.

Off campus collections:

- Must be tested within 4 hours.
- Do not refrigerate.
- If not received in our lab within 4 hours of collection, sample must be centrifuged and *platelet-poor plasma removed from cells and transferred to an aliquot tube. Freeze at -20°C and deliver to the lab on dry ice within 2 weeks.

***Validation of your lab's centrifuge for platelet poor plasma is required.**

Special Processing:

Lab staff: Centrifuge in Stat Spin for 5 minutes or 10 minutes at 3000 rpm at room temperature. For primary tube testing, leave plasma on cells OR remove plasma and place in a 4 mL plastic cup; allow for 100 uL of dead space.

Test within:

- Four (4) hours when stored as plasma remaining in the capped tube above the packed cells 18 to 24°C.
- Four (4) hours as plasma that has been separated from cells by centrifugation when stored when stored 2 to 8°C or 18 to 24°C.
- Two (2) weeks when stored -20°C.
- Six (6) months when stored -70°C (rapidly frozen).
- Plasma must be frozen if testing cannot be completed within four (4) hours.
- Frozen plasmas are thawed at 37°C for three (3) minutes, test immediately.

Patient Preparation:

None

Sample Rejection:

The following specimens will be rejected: Improper tube, clotted sample, overfilled tube, under-filled tube, mislabeled or unlabeled specimens

Interpretive**Reference Range:**

Age	Range (seconds)
0 - 3 months:	25.0 - 43.6
3 – 6 months:	23.2 - 40.1
>6 months:	20.0 - 34.4

Note: High values above linearity will be reported as >139.0 seconds.

Critical Values:	>48 seconds
Limitations:	It is recommended that this test NOT be used to monitor heparin therapy at Children's Hospitals and Clinics due to the variation in response between individuals. This is caused by different plasma levels of heparin neutralizing proteins and age-related variations in levels of intrinsic pathway factors. The PTT may be in the normal range in patients with mild factor deficiencies, especially Factor IX.
Methodology:	Factors of the intrinsic coagulation system are activated by incubating the plasma with the optimal amount of phospholipids and a surface activator. The addition of calcium ions triggers the coagulation process, and the clotting time is then measured.
Contraindications:	Patient on heparin therapy
References:	Harmening DH (1997) Clinical Hematology and Fundamentals of Hemostasis
Updates:	<p>2/17/2005: Critical value previously listed as >51.0 seconds.</p> <p>7/19/2006: Removed statement, "Do not transport by pneumatic tube".</p> <p>1/30/2008: 0 - 3 months: 1.3 – 54.5 sec, 3 – 6 month: 29.0 – 50.1 sec, >6 months: 25.0 – 43.0 sec, Critical value previously listed as >60 sec.</p> <p>8/20/2013: Updated specimen stability information.</p> <p>9/15/2014: Added off campus collection info.</p> <p>7/11/2023: Updated high value reporting to above linearity of 139.0 seconds.</p> <p>7/18/23: Updated methodology, testing performed at MPLS and STP sites.</p>