

Thrombin clotting time (TCT)



Description, significance:

The thrombin clotting time tests for the final phase of coagulation, the formation of fibrin. The thrombin clotting time is sensitive for the presence of unfractionated heparin or direct thrombin inhibitors (dabigatran (Pradaxa®), argatroban (Argatra®), bivalirudin (Angiox®)). The effect of heparin is dose-dependent, therefore heparin therapy can be well controlled with the thrombin clotting time. Direct thrombin inhibitors cause very long thrombin clotting times, even in low concentrations. If a specific measurement of these substances is desired, then a diluted thrombin time must be used, which is another test system (Hemoclot test).

Reference range:

< 21 seconds

Increased values:

Heparin therapy: therapeutic range approx. 60-80 seconds. Artificially very high values in presence of direct thrombin inhibitors. Hypo- and dysfibrinogenemia.

Decreased values:

not clinically relevant

Preanalytics:

The thrombin clotting time is determined automatically from citrate plasma. Care must be taken to collect blood accurately, avoid contamination, fill the blood tube correctly and mix well with the citrate. The blood sample must be sent to the laboratory as quickly as possible.

Influencing/disturbing factors:

Fibrinogen deficiency, dysfibrinogenemia, direct thrombin inhibitors fibrinolytic therapy.

References:

Thomas L, Laboratory and Diagnosis, 2023, Release 5: <https://www.labor-und-diagnose.de/index.html>
Parameter catalog of the Clinical Institute for Laboratory Medicine, Med.Univ.Wien and AKH Vienna: <https://www.akhwien.at/default.aspx?pid=3982>
List of services for clinical chemistry, Univ.Klinikum Ulm: <https://www.uniklinik-ulm.de/zentrale-einrichtung-klinische-chemie/leistungskatalog.html>