

Thrombomodulin



Diagnostic relevance

Thrombomodulin (TM; CD141) is an endothelial cell surface receptor that exerts anti-coagulant, anti-fibrinolytic, and anti-inflammatory activity by binding thrombin and inhibiting cellular adhesion.

TM is down-regulated by pro-inflammatory stimuli, like hypoxia, endotoxin, and various pro-inflammatory cytokines (Tumor Necrosis Factor-alpha, Interleukin-1).

On the other hand, certain pharmacological compounds (like pentoxifylline and statins) up-regulate endothelial TM and thus favour anti-coagulant conditions.

TM has been implicated in tumor biology. Loss of expression denotes a more malignant profile with poorer prognosis.

Elevated plasma levels of TM fragments (soluble Plasma TM; sP-TM), have been described as a biomarker for *in vivo* endothelial cell injury in various clinical conditions, such as cardiovascular disease and diabetes.

Indication

- Endothelial injury
- Cardiovascular disorders
- Coronary heart disease
- Diabetes
- Metabolic Syndrome

Pathophysiology

TM is an integral membrane glycoprotein resembling the low-density lipoprotein (LDL) receptor. It contains several EGF repeats, some of which are involved in high affinity binding of thrombin.

TM binds thrombin and converts it from a pro-coagulant protease into an enzyme that initiates an anti-coagulant pathway: TM-bound thrombin activates Protein C, and activated Protein C (APC) cleaves and inactivates various activated clotting factors, including Va and VIIIa.

Immunohistochemical analysis has localized TM to the luminal surface of the endothelium of blood vessels and lymphatics.

TM is present in human plasma and urine in truncated forms, lacking the transmembrane and cytoplasmic domains.

References

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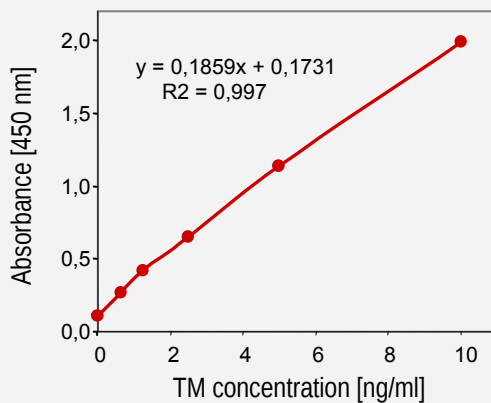


Principle of the assay

The IMUBIND(Thrombomodulin (TM) ELISA is a "sandwich" ELISA employing a monoclonal antibody which recognizes the EGF1 - EGF2 domains of TM. Specificity of the capture antibody for native, complexed and truncated TM was confirmed by Western Blot analysis. Samples incubate in microtest wells precoated with the capture antibody. A second horseradish peroxidase (HRP) conjugated monoclonal antibody specific for the EGF5 - EGF6 domains recognizes the bound TM, completing the antibody-antigen-antibody "sandwich".

After addition of a peroxidase enzyme substrate (TMB) the colour development is stopped and the intensity of the colour is measured at 450 nm.

Standard curve



Related products

- monoclonal anti-human TM antibodies
- polyclonal anti-human TM antibodies
- recombinant human TM protein
- polyclonal anti rat TM antibodies
- polyclonal anti rabbit TM antibodies
- rabbit TM protein

Key Features

- **Format:** 96-well plate
- **Sample type:** human plasma (citrate or heparinized)
- **Sample Volume:** 50 µL to perform a duplicate analysis
- **Assay Range:** 0-10 ng/ml
- **Specificity:** native, complexed, and truncated human TM
- **Sensitivity:** 0.3 ng/ml
- **Precision:** intra-assay CV = 4.0 %, inter-assay CV= 5.2 %
- **For research use only**

REFER TO APPROPRIATE PACKAGE INSERT FOR ADDITIONAL TECHNICAL INFORMATION

Scientific information on TMover

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