

Anti-Human Factor IIa (Thrombin) Monoclonal 0.50 mg



Ref#: MAB-HF2A
Lot#: xxxxxx
Exp. Date: xxxx-xx

Store at -20°C

For Research Use Only
Not for Use in Diagnostic Procedures
For *in vitro* use only

Epitope:	Human Factor IIa (Thrombin)
Format:	Monoclonal antibody purified by protein G affinity chromatography from cell supernatant. Lyophilized in 20 mM sodium phosphate, 150 mM NaCl, 1% Mannitol, 0.01% sodium azide, pH 7.4
Storage:	Store unopened vial at -20°C until its expiration date. Reconstitute with aqua dest to the original volume (0.50 mL), centrifuge to remove insoluble material and freeze aliquots at -20°C or below. Avoid freeze/thaw cycles. Expires 2 years after reconstitution.
Total Protein:	0.50 mg
Applications:	For Research Use Only. Not for Use in Diagnostic Procedures. For <i>in vitro</i> use only
Volume:	1 vial containing 0.50 mL monoclonal anti-human Thrombin
Concentration:	1 mg/mL
Specificity:	Binds human thrombin in solid-phase ELISA and western blots. It does not cross react with prothrombin, prethrombin-1, prethrombin-2 or bovine thrombin. Recommended use: 1-5 µg/mL. Optimum conditions of this antibody in analytical procedures should be established in each laboratory.

Thrombin is the product of proteolytic activation of the zymogen prothrombin. Human thrombin is a two-chain serine protease with a mass of 37 kDa. The active site is located within the heavy chain. Thrombin has a high specificity for certain arginine bonds in protein substrates. The primary substrate is fibrinogen which thrombin converts to fibrin through the cleavage of four arginyl-glycyl peptide bonds. Thrombin is also an important activator of platelets, factor XIII, protein C and TAFI (Plasma procarboxypeptidase B). In a positive feedback mechanism, thrombin increases the rate of its own production by activation of factors VIII and V. The rate of thrombin production is subsequently limited indirectly through the activation of protein C by thrombin, which then inactivates the activated cofactors VIII and V. The binding of thrombin to thrombomodulin on the cell surface dramatically alters thrombin's specificity, increasing its activity toward protein C and TAFI, and decreasing its activity toward fibrinogen and activating cofactors VIII and V. In plasma, thrombin activity is inhibited primarily by antithrombin and to a lesser extent heparin cofactor II. The rate of inhibition by both of these inhibitors is profoundly increased in the presence of optimal concentrations of heparin. Other physiological inhibitors of thrombin in the absence of heparin include α 2-macroglobulin and α 1-antitrypsin1.