



Sheep Anti-Human Thrombin Affinity-Purified IgG (0.5 mg)

Catalogue: SAHT-AP
Lot: SAMPLE
Expiry date: **/****
Store at -10 to -20°C.

For Research Use Only ~ Not for use in diagnostic procedures.

Description of Thrombin

Thrombin (EC3.4.21.5, α -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 -antitrypsin¹⁻⁴.

References and Reviews

1. Mann KG; Prothrombin and Thrombin; in Haemostasis and Thrombosis, 3rd Edition, eds. RW Colman, J Hirsh, VJ Marder and EW Salzman, pp 184-199, J.B. Lippincott Co., Philadelphia PA, USA, 1994.
2. Stubbs MT, Bode W; A Player of Many Parts: The Spotlight Falls on Thrombin's Structure; Thrombosis Research 69, pp 1-58, 1993.
3. Downing MW, Bloom JW, Mann KG; Comparison of the Inhibition of Thrombin by Three Plasma Protease Inhibitors;

Biochemistry 17, pp 2649-2653, 1978.

4. Weitz JI, Hudoba M, Massel D, Maranganore J, Hirsh J; Clot-bound Thrombin is Protected from Inhibition by Heparin-ATIII but is Susceptible to ATIII independent Inhibitors: J. Clin. Invest 86, pp 385-391, 1990.

Product Specifications

Description:

Vial containing 0.250 ml of IgG purified chromatography on immobilized PPACK-thrombin. Total protein is 0.5 mg.

Format:

Affinity-purified IgG (APIgG), clear liquid.

Host Animal:

Sheep

Immunogen:

Thrombin prepared from purified human prothrombin, active site blocked with PPACK.

Concentration:

APIgG concentration is 2.0 mg/ml, determined by absorbance using an extinction coefficient ($E_{280}^{1\%}$) of 13.4.

Buffer:

10 mM HEPES, pH 7.4, 150 mM NaCl, 50% (v/v) glycerol.

Storage:

Store between -10 and -20 °C. Product will become viscous but will not freeze. Avoid storage in frost-free freezers. Keep vial tightly capped. Allow product to warm to room temperature and gently mix before use.

Specificity:

This antibody is specific for thrombin (or prothrombin) as demonstrated by immunoelectrophoresis and ELISA.

Applications:

Suitable as a source of antibodies to human thrombin (and prothrombin).

Neutralizing activity:

Not determined.

Related Products

SAHT-IG	Sheep Anti-Human Thrombin, whole IgG from antiserum
SAHT-HRP	Sheep Anti-Human Thrombin, peroxidase labelled IgG
SABT-IG	Sheep Anti-bovine Thrombin, whole IgG from antiserum
SABT-AP	Sheep Anti-bovine Thrombin, affinity purified IgG
SABT-HRP	Sheep Anti-bovine Thrombin, peroxidase labelled IgG
SART-IG	Sheep Anti-rabbit Thrombin, whole IgG from antiserum
SART-AP	Sheep Anti-rabbit Thrombin, affinity-purified IgG
SART-HRP	Sheep Anti-rabbit Thrombin, peroxidase labelled IgG
TAT-EIA	Antibody set for ELISA of Thrombin-ATIII complexes
THCII-EIA	Antibody set for ELISA of Thrombin-HCII complexes
FII-DP	Human plasma deficient in Prothrombin, immune

depleted

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