



## Sheep anti-human Prothrombin (F.II)

Affinity-Purified IgG

0.5 mg

**Product #:** SAFII-AP

**Lot #:** XXXX

**Expiry date:** XXXX

Store at -10 to -20°C

For Research Use Only.

Not for use in diagnostic procedures.

### Description of Prothrombin (F.II)

Prothrombin (factor II, F.II) is a vitamin K-dependent glycoprotein produced in the liver. The concentration of prothrombin in plasma is ~100 µg/ml (~1.4 µM). Prothrombin is a single chain molecule with a molecular weight of 72 kDa. Prothrombin consists of a catalytic domain followed by two kringle structures and an amino-terminal domain containing 10 γ-carboxy-glutamic acid (gla) residues. These gla residues allow prothrombin to bind to membranes that contain acidic phospholipids in a calcium dependent manner. The binding to membranes is required for effective presentation of prothrombin as a substrate for activation by the prothrombinase complex, which consists of activated factor X, activated cofactor V and calcium on phospholipid membrane. Activation by prothrombinase occurs by sequential cleavage after residue Arg<sup>320</sup> then after Arg<sup>271</sup> to produce the active protease α-thrombin (37 kDa) and the by-product prothrombin fragment 1.2 (35 kDa). The product thrombin further cleaves prothrombin fragment 1.2 after residue Arg<sup>155</sup> into individual prothrombin fragments 1 and 2. The activity of α-thrombin in plasma is inhibited primarily by antithrombin and the rate of inhibition is accelerated 1000-fold in the presence of optimal concentrations of heparin. Other physiological inhibitors of thrombin in the absence of heparin include α<sub>2</sub>macroglobulin and α<sub>1</sub>antitrypsin<sup>1-3</sup>.

### REFERENCES and REVIEWS

1. Mann KG; Prothrombin and Thrombin; in Hemostasis and Thrombosis, 3<sup>rd</sup> Edition, eds. RW Colman, J Hirsh, VJ Marder and EW Salzman, pp. 184-199, J.B. Lippincott Co., Philadelphia PA, USA, 1994.
2. Mann KG; Prothrombin; Methods in Enzymology 45, pp 123-156, 1976.
3. Downing MW, Bloom JW, Mann KG; Comparison of the Inhibition of Thrombin by Three Plasma Protease Inhibitors; Biochemistry 17, pp 2649-2653, 1978.

### Product Specifications

#### Description:

Vial containing XXXX ml of IgG purified by affinity-chromatography on immobilized F.II. Total protein is 0.5 mg.

#### Format:

Affinity-purified IgG (APIgG), clear liquid.

#### Host Animal:

Sheep

#### Immunogen:

Human prothrombin purified from plasma.

#### Concentration:

APIgG concentration is XXXX mg/ml, determined by absorbance using an extinction coefficient ( $E^{1\%}_{280}$ ) 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 prothrombin as demonstrated by immunoelectrophoresis and ELISA.

#### Applications:

Suitable as a source of enriched antibodies to human prothrombin.

#### Neutralizing activity:

Not determined

#### Species Cross Reactivity: (immunodiffusion vs. citrated plasma)

Human:	XXXX	Mouse:	XXXX	Rat:	XXXX
Rabbit:	XXXX	Pig:	XXXX	Dog:	XXXX