



## Sheep anti-human Factor IX (F.IX)

Affinity-Purified IgG

0.5 mg

**Product #:** SAFIX-AP

**Lot #:** XXXX

**Expiry date:** XXXX

Store at -10 to -20°C

For Research Use Only.

Not for use in diagnostic procedures.

### Description of Factor IX

Factor IX (F.IX, Christmas Factor) is a vitamin K-dependent glycoprotein produced in the liver. Plasma concentration of F.IX is normally around 5 µg/ml (87 nM) in plasma. The biological importance of F.IX is demonstrated in Haemophilia B (Christmas disease), an X-linked congenital bleeding disease resulting from a quantitative (low activity and low antigen) or qualitative (low activity and normal antigen) defect in F.IX function.

In its proenzyme or zymogen form F.IX is a single chain molecule of 55,000 daltons. It contains two EGF-like domains and an amino-terminal domain containing 12 γ-carboxy-glutamic acid (Gla) residues. These Gla residues allow F.IX to bind divalent metal ions and participate in calcium-dependent binding interactions. The activation of F.IX occurs by limited proteolysis in the presence of calcium by activated factor XI (FXI<sup>a</sup>) and/or by a complex of VII<sup>a</sup>/tissue factor/phospholipid and activated Factor X between residues Arg<sup>146</sup>-Ala<sup>147</sup> and between Arg<sup>180</sup>-Val<sup>181</sup>. The terminal activated product in either case is F.IX<sup>a</sup><sub>β</sub>, a two-chain enzyme consisting of a heavy chain (28,000 daltons), a light chain (18,000 daltons) and an activation peptide product of 11,000 daltons. F.IX can also be cleaved into inactive products by thrombin and by elastase.

The activity of F.IX<sup>a</sup><sub>β</sub> in plasma is inhibited by antithrombin and this inhibition is accelerated 1000-fold in the presence of optimal concentrations of heparin<sup>1-3</sup>.

### REFERENCES and REVIEWS

1. Lawson, JH, Mann KG; Cooperative Activation of Human F.IX by the Human Extrinsic Pathway of Coagulation; JBC 266 pp11317-11327, 10991.
2. Enfield DL, Thompson AR; Cleavage and Activation of Factor IX by Serine Proteases; Blood 64, pp 821-831, 1984.
3. Limentani SA, Furie BC, Furie B, in **Hemostasis and Thrombosis**, 3<sup>rd</sup> Edition, eds. RW Colman, J Hirsh, VJ Marder and EW Salzman, pp. 94-108, J.B. Lippincott Co., Philadelphia PA, USA, 1994.

### Product Specifications

#### Description:

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

#### Format:

Affinity-purified IgG (APIgG), clear liquid.

#### Host Animal:

Sheep

#### Immunogen:

Human Factor IX 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 F.IX as demonstrated by immunoelectrophoresis and ELISA.

#### Applications:

Suitable as a source of enriched antibodies to F.IX.

#### Neutralizing activity:

XXXX Bethesda Units/ml IgG against normal plasma.

One Bethesda unit/ml is defined as the amount of inhibitor that resulted in 50% residual F.IX activity after 2 hours at 37°C (Kasper CK *et al*, Thromb Diath Haemorrh **34**:869, 1975).

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

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