

Human Factor IXa

REF 449B Lot No. YYMMDD, Exp. YYYY-MM-DD

Description

Factor IX is a single chain vitamin K-dependent glycoprotein synthesized in the liver ($M_r=55,000$) that circulates in plasma at a concentration of 4-5 $\mu\text{g/mL}$. Factor IX is activated to Factor IXa by cleavage of two peptide bonds by either Factor XIa or the Factor VIIa/Tissue Factor/phospholipid complex. This cleavage releases an activation peptide with a molecular weight of 10,000 and results in a two-chain protease with a molecular weight of 45,000: a 28,000 molecular weight carboxy-terminal heavy chain and a 17,000 molecular weight amino-terminal light chain covalently attached by a disulfide bond.

The heavy chain contains the protease domain while the light chain possesses the γ -carboxyglutamic (gla) residues which allow for the calcium dependent binding of FIXa to negatively charged phospholipid surfaces. Factor IXa is key component of the Factor Xase complex (Factor VIIa/IXa/ Ca^{+2} /phospholipid) which activates Factor X to Factor Xa. Factor IXa is inhibited by antithrombin III.

Preparation

Human Factor IXa is prepared from purified human factor IX using an activation procedure described by Lindquist (Reference 4). Further purification is performed by gel filtration and immunoaffinity chromatography. Purity is determined via SDS-PAGE analysis.

Presentation

Screw-capped plastic tube containing 0.5 mg of human factor IXa in XXX μL of a 50% glycerol/water solution. Protein content was determined by spectrophotometric analysis at a wavelength of 280 nm using an extinction coefficient of 1.40 for a 0.1% solution, 1 cm pathlength.

Specific Activity

Lot YYMMDD has a specific activity of XXXX units/mg, therefore the vial contains XXX units of activity. The activity has been determined via a single-stage FIX clotting assay where one unit is defined as the FIXa activity found in 1 mL of normal human plasma.

Storage

Store at -20°C or colder.

References

1. Thompson, A. R. Blood 1986, 67: 565-572.
2. Hedner, U., et al., in Hemostasis and Thrombosis, 2nd edition, ed. R.W. Colman, J. Hirsh, V. J. Marder and E.W. Salzman, pp 39-47, J.B. Lippincott Company, Philadelphia, 1987.
3. Fujikawa, K. and Davie, E. W. *Methods in Enzymology* 1976, **45**: 74.
4. Lindquist, P. A., Fujikawa, K., and Davie, E. W. *Journal of Biological Chemistry* 1978, **253**: 1902-1909.