Sekisui Diagnostics, LLC
500 West Avenue, Stamford, CT 06902
Tel. (203) 602-7777 Fax (203) 602-2221

human factor XIa

REF 4011A Lot No. YYMMDD, Exp. YYYY-MM-DD

Description

Factor XI is synthesized in the liver as a two chain homodimer glycoprotein, with a molecular weight of approximately 160,000 D, that circulates in plasma as a compex with high molecular weight kininogen. It's activation to factor XIa is the result of a single cleavage of factor XI by factor XIIa at amino acids Arg369-Ile370 in each monomer. Being a homodimer, this cleavage results in the enzyme possessing two identical amino-terminal heavy chains, 50,000 D each, and two identical carboxy-terminal light chains, 30,000 D each, held together by disulfide bonds. The catalytic domain possessing the protease activity is found in the light chains of the protein.

Factor XIa is an integral component of the intrinsic coagulation pathway. After activation, FXIa remains in complex with high molecular weight kininogen and is able to activate factor XII to factor XIIa and prekallikrein to kallikrein. As a complex, FXIa will proteolitically inactive the high molecular weight kininogen and cause the complex to dissociate. As a free protease, FXIa is able to activate factor IX to factor IXa.

Preparation

Human factor XIa was activated from human factor XI, itself purified from human plasma, using factor XIIa. Factor XIIa is removed following the activation process by affinity chromatography. Purity is determined via SDS-PAGE analysis.

Presentation

Screw-capped plastic tube containing 50 µg of human factor XIa 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 1.34 for a 0.1% solution, 1 cm pathlength.

Specific Activity

Approximately XXX units/mg therefore the vial contains approximately XXX units of activity. The activity is measured by a clotting assay using factor XI deficient plasma. One unit is defined as the amount of factor XI activity found in one mL of normal plasma.

Storage

Store at -20°C.

References

1. Thompson, R. E., *et al.* *Journal of Clinical Investigations* 1977, **60**: 1376.
2. Kurachi, K. and Davie, E. W. *Biochemistry* 1977, **16**: 5831.
3. Bouma, B. N. and Griffen, J. H. *Journal of Biological Chemistry* 1977, **252(18)**: 6432-6437.
4. Kurachi, K., *et al.* *Biochemistry* 1980, **19**: 1330.