

# Factor X (Bovine)

1.00 mg

Ref#: BF10

Lot#: xxxxxx

Exp. Date: xxxx-xx



For Research Use Only  
Not for Use in Diagnostic Procedures  
For *in vitro* use only

<b>Description:</b>	Factor X (Bovine)
<b>Format:</b>	Lyophilized in 20 mM Tris-HCl / 0.1 M NaCl / 1mM Benzamidine / pH 7.2
<b>Host:</b>	Bovine
<b>Storage:</b>	Store between +2 and +8°C After reconstitution aliquot and freeze at ≤ -60°C
<b>Reconstitution:</b>	We recommend hydrating the protein with sterile water to the original volume
<b>Volume:</b>	Vial containing 0.704 mL
<b>Total Protein:</b>	1.00 mg
<b>Concentration:</b>	1.42 mg/mL before lyophilisation by Absorbance; Extinction Coefficient $E^{1\%}_{280} = 12.5$
<b>Molecular weight:</b>	55,000 daltons

Factor X (FX, Stuart Factor) is a vitamin K-dependent glycoprotein produced in the liver. The concentration in plasma is ~10 µg/mL (~170 nM). FX is expressed as a two-chain molecule with a molecular weight of 55 kDa. The light chain contains a calcium-binding domain consisting of one hydroxy-aspartic acid and 11 γ-carboxyglutamic acid (gla) residues. These residues allow FX to bind to membranes that contain acidic phospholipids in a calcium dependent manner. This is followed by two EGF-like domains. The heavy chain consists of the catalytic domain, carbohydrate and the activation peptide. Activation to the active enzyme (FXa) results from cleavage at residue Arg52 in the heavy chain by a complex of FIXa, cofactor VIIIa, calcium and negatively charged phospholipid surface, or by the FVIIa-tissue factor complex. Factor Xa is the enzyme component in the prothrombinase complex (FXa, FVa, negatively charge cell membrane and calcium ion), which catalyzes the conversion of prothrombin to thrombin. Although FXa alone can convert prothrombin to thrombin, assembly of the prothrombinase complex results in a 300,000-fold increase in the rate of prothrombin conversion. FXa activity is down-regulated by inactivation of the cofactor, FVa or by direct inhibition of FXa by its principal inhibitor Antithrombin III.

The bovine Factor X is >95% pure on SDS-PAGE and shows total reduction upon incubation with 2-mercaptoethanol.

All bovine material is from USDA inspected herd pre and post mortem. All material is from U.S. cows ≤ 30 months age.