

Bovine Protein C

Cat. No. CZY-018

Lot. No. (See product label)

Introduction

Description

The vitamin K-dependent zymogen, protein C, is synthesized in the liver as a single chain polypeptide and is subsequently converted to a disulfide linked heterodimer, by removal of a dipeptide (Lys-146 and Arg-147) from the precursor molecule. Trace quantities of the single chain form have been observed in plasma. The light chain, which is responsible for the calcium dependent binding of protein C to phospholipid vesicles, contains 11 γ -carboxyglutamic acid (gla) residues, 1 β -hydroxyaspartic acid residue, and 2 epidermal growth factor (EGF) homology domains. The serine protease catalytic triad is located in the heavy chain. Human protein C is susceptible to proteolytic cleavage of a peptide ($M_r=3000$) from the COOH-terminal end of the heavy chain, yielding an altered form referred to as β -protein C. No functional distinction between α - and β -protein C has been observed. A single cleavage at Arg-12 (Arg-14 in bovine) of the heavy chain of human protein C converts the zymogen into the serine protease, activated protein C. This cleavage is catalyzed by a complex between α -thrombin and the endothelial cell surface protein thrombomodulin. In contrast to the other vitamin K dependent coagulation factors, activated protein C functions as an anticoagulant by catalyzing the proteolytic inactivation of factors Va and VIIIa. APC also contributes to the fibrinolytic response by complex formation with plasminogen activator inhibitors. Bovine protein C is prepared from fresh citrated bovine plasma by a modification of the Walker procedure, as described by Haley et al. Human protein C is prepared from fresh frozen citrated human plasma using a combination of immunoaffinity chromatography, and conventional techniques. Protein C is provided in 50% (vol/vol) glycerol/H₂O and should be stored at -20°C. Purity is determined by SDS-PAGE analysis and activity is measured using a chromogenic substrate based assay.

Product Information

Source	Bovine
Formulation	50% glycerol/water (v/v)
Molecular Weight	58000
Purity	>95% by SDS-PAGE
Isoelectric point	4.2-4.5
Structure	two chains, $M_r=41,000$ and $21,000$, disulfide linked, NH ₂ -terminal gla domain two EGF domains
Localization	Plasma
Extinction coefficient	13.7
Percent carbohydrate	0.14
Post-translational modifications	eleven gla residues one β -hydroxyaspartate

Usage and Packaging

<i>Package</i>	100 µg
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Storage and Shipping Information

<i>Storage</i>	-20°C
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<i>Stability</i>	12 months
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