Creative Enzymes®

Human Protein C

Cat. No. CZY-017

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 b-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 (Mr=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	Human
Formulation	50% glycerol/water (v/v)
CAS No.	42617-41-4
Molecular Weight	62000
Purity	>95% by SDS-PAGE
Specific Activity	<1% APC Activity
Concentration	7.6 mg/mL
Isoelectric point	4.4-4.8
Structure	two chains, Mr=41,000 and 21,000, disulfide linked, NH2-terminal gla domain two EGF domains
Buffer	50% Glycerol/H2O (v/v)
Localization	Plasma
Extinction coefficient	14.5

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Percent carbohydrate	0.23
Post-translational modifications	nine gla residues one β-hydroxyaspartate

Usage and Packaging

Package	100 μg

Storage and Shipping Information

Storage	-20°C
Stability	12 months