

# Activated Protein C (Human)

1.00 mg

Ref#: HAPC-1

Lot#: xxxxxx

Exp. Date: xxxx-xx



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

<b>Description:</b>	Activated Protein C (APC)
<b>Format:</b>	Lyophilized in 20 mM Tris-HCl / 0.1 M NaCl / pH 7.3
<b>Host:</b>	Human
<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>	1 vial containing 0.585 mL
<b>Total Protein:</b>	1.00 mg
<b>Concentration:</b>	1.71 mg/mL before lyophilisation by Absorbance; Extinction Coefficient $E^{1\%}_{280} = 14.5$
<b>Activity:</b>	219.30 Plasma Equivalent Units (PEU)/mg
<b>Molecular weight:</b>	56,000 daltons

Protein C (PC) is a vitamin K-dependent glycoprotein produced in the liver. The concentration in plasma is ~4 µg/mL (~60 nM). A deficiency of Protein C (quantitative or qualitative) is a risk factor for vascular thrombosis. Protein C is expressed as a two-chain molecule with a molecular weight of 62 kDa. The light chain (21 kDa) consists of two EGF-like domains and an amino-terminal domain containing one hydroxyaspartic acid and 11 γ-carboxyglutamic acid (gla) residues. These residues allow PC to bind to membranes that contain acidic phospholipids in a calcium dependent manner. The heavy chain (41 kDa) consists of the catalytic domain and an activation peptide. Activation of PC results from cleavage at residue Arg12 in the heavy chain by a complex of thrombin and a cell surface cofactor thrombomodulin. The activation of PC is associated with the release of a small activation peptide (2-3 kDa, called Protein C peptide, or PCP) from the N-terminal of the heavy chain.

Activated PC (APC) is a serine protease with anticoagulant activity. APC, in complex with a phospholipid membrane, calcium and the Protein S cofactor, exhibits anticoagulant activity through the proteolytic inactivation of coagulation cofactors Va and VIIIa. The primary inhibitor of APC activity in plasma is Protein C Inhibitor (PCI, also called Plasminogen Activator Inhibitor-3, PAI-3) and to a lesser extent by α1antitrypsin and α2macroglobulin. The inhibitory activity of PCI is stimulated approximately 10-fold by heparin.

This human Activated Protein C was activated from homogeneous human Protein C by activation with purified alpha-Thrombin. This alpha-Thrombin was removed after activation. Complete activation with was observed on SDS-Page.

We suggest hydrating the protein to the original volume with water. After hydration aliquot into a useful (one time use) size and freeze at <-60°C.

The above protein was purified from Human plasma that was tested and found negative by FDA accepted methods for Anti-HIV 1/2, Anti-HTLV I & II, HBsAg, Anti-HCV, Syphilis, HBC Ab, HIV-1 p24 Ag or HIV-1 RNA, HCV RNA and HBV RNA. Donors are screened for CJD (Creutzfeld-Jakob Disease).