

Recombinant Human Clusterin

Alternate names: IFN alpha, Interferone alpha

Catalog No.: PA1041XC

Quantity: 1 mg

Background: Clusterin also names Apolipoprotein J is a 75-80 kD disulfide-linked heterodimeric protein containing about 30% of N-linked carbohydrate rich in sialic acid but truncated forms targeted to the nucleus have also been identified. The precursor polypeptide chain is cleaved proteolytically to remove the 22-mer secretory signal peptide and subsequently between residues 227/228 to generate the alpha and beta chains. These are assembled in anti-parallel to give a heterodimeric molecule in which the cysteine-rich centers are linked by five disulfide bridges and are flanked by two predicted coiled-coil alpha-helices and three predicted amphipathic a-helices. Across a broad range of species clusterin shows a high degree of sequence homology ranging from 70% to 80%. It is nearly ubiquitously expressed in most mammalian tissues and can be found in plasma, milk, urine, cerebrospinal fluid and semen. It is able to bind and form complexes with numerous partners such as immunoglobulins, lipids, heparin, bacteria, complement components, paraoxonase, beta amyloid, leptin and others. Clusterin has been ascribed a plethora of functions such as phagocyte recruitment, aggregation induction, complement attack prevention, apoptosis inhibition, membrane remodelling, lipid transport, hormone transport and/or scavenging, matrix metalloproteinase inhibition. A genuine function of clusterin has not been defined. One tempting hypothesis says that clusterin is an extracellular chaperone protecting cells from stress induced insults caused by degraded and misfolded protein precipitates. Clusterin is up- or downregulated on the mRNA or protein level in many pathological and clinically relevant situations including cancer, organ regeneration, infection, Alzheimer disease, retinitis pigmentosa, myocardial infarction, renal tubular damage, autoimmunity and others.

Species: Human

Source: E. coli, 293 cell line (Human embryonic kidney)

Format: **State:** Filtered (0.4 micron) and lyophilized.
Purity: >98% Ni-NTA chromatography. Greater than 95% (SDS PAGE analyzed).
Buffer System: PBS, pH 7.5

Reconstitution: Add 0.2 ml of deionized H₂O and let the lyophilized pellet dissolve completely.

Description: The Clusterin Human contains a total of 454 amino acids. The AA sequence (AA 1-427) is identical to Swiss-Prot-P10909 (AA 23-449, secreted Human Clusterin). C-terminal His tag 27AA (bold).

AA Sequence:

DQTVSDNELQ EMSNQGSKYV NKEIQNAVNG VKQIKTLIEK TNEERKTLLS NLEEAKKKKE DALNETRESE
TKLKELPGVC NETMMALWEE CKPCLKQTCM KFYARVCRSG SGLVGRQLEE FLNQSSPFYF WMNGDRIDSL
LENDRQQTHM LDVMQDHFSR ASSIIDELFQ DRFFTREPQD TYHYLPFSLP HRRPHFFFPK SRIVRSLMPF
SPYEPLNFHA MFQPFLEMIH EAQQAMDIHF
HSPAFQHPPT EFIREGDDDR TVCREIRHNS TGCLRMKDQC DKCREILSVD CSTNNPSQAK LRRELDLSQ
VAERLTRKYN ELLKSYQWKM LNTSSLLEQL NEQFNWVSR L ANLTQGEDQY YLRVTTVASH TSDSDVPSGV
TEVVVKLFDS

DPITVTVPVE VSRKNPKFME TVA EKALQEY RKKHREEGSL GSGWSPQFE KTGHHHHHHH HGGQ.

Molecular weight: 19 kDa 53058Da

Storage:

Store lyophilized protein at -20°C. Aliquot the product after reconstitution to avoid repeated freezing/thawing cycles. Reconstituted protein can be stored at 4°C for a limited period of time; it does not show any change after two weeks at 4°C. Please avoid freeze-thaw cycles. The lyophilized protein remains stable until the expiry date when stored at -20°C.

General Readings:

1. Ricci F, Pucci S, Sesti F, Missiroli F, Cerulli L, Spagnoli LG. Modulation of Ku70/80, clusterin/ApoJ isoforms and Bax expression in indocyanine-green-mediated photo-oxidative cell damage. *Ophthalmic Res.* 2007;39(3):164-73. Epub 2007 May 25. PubMed PMID: 17534116.
2. Kim SY, Lee S, Min BH, Park IS. Functional association of the morphogenic factors with the clusterin for the pancreatic beta-cell differentiation. *Diabetes Res Clin Pract.* 2007 Sep;77 Suppl 1:S122-6. Epub 2007 May 23. PubMed PMID: 17512083.
3. The role of clusterin in retinal development and in free radical damage. *Br J Ophthalmol* 2007 May 2;
4. Ishii A, Sakai Y, Nakamura A. Molecular pathological evaluation of clusterin in a rat model of unilateral ureteral obstruction as a possible biomarker of nephrotoxicity. *Toxicol Pathol.* 2007 Apr;35(3):376-82. PubMed PMID: 17455085.
5. Nizard P, Tetley S, Le Dréan Y, Watrin T, Le Goff P, Wilson MR, et al. Stress-induced retrotranslocation of clusterin/ApoJ into the cytosol. *Traffic.* 2007 May;8(5):554-65. PubMed PMID: 17451556.
6. Suuronen T, Nuutinen T, Ryhänen T, Kaarniranta K, Salminen A. Epigenetic regulation of clusterin/apolipoprotein J expression in retinal pigment epithelial cells. *Biochem Biophys Res Commun.* 2007 Jun 1;357(2):397-401. Epub 2007 Apr 3. PubMed PMID: 17420006.