

Recombinant Human AMBP Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP50029

Size: 10ug, 100ug

Protein Name: Protein AMBP (Protein HC) [Cleaved into: Alpha-1-microglobulin (EC 1.6.2.-) (Alpha-1 microglycoprotein) (Complex-forming glycoprotein heterogeneous in charge); Inter-alpha-trypsin inhibitor light chain (ITI-LC) (Bikunin) (EDC1) (HI-30) (Uronic-acid-rich protein); Trypstatin]

Synonym: AMBP, HCP, ITIL

UniProt ID: P02760

UniProt Link: www.uniprot.org/uniprotkb/P02760/entry

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 352 AA

Molecular Weight: 39 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MRSLGALLLLLSACLAVSAGPVPTPPDNIQVQENFNISRIYGKWYNLAIGSTCPWLKKIMDRMTVSTL
VLGEGATEAEISMTSTRWRKGVCEETSGAYEKTDTDGKFLYHKSKWNITMESYVVHTNYDEYAIFLT
KKFSRHHGPTITAKLYGRAPQLRETLQDFRVVAQGVGIPEDSIFTMADRGECPGEQEPEPILIPRV
RRAVLPPQEEEGSGGGQLVTEVTKKEDSCQLGYSAGPCMGMTSRYFYNGTSMACETFQYGGCMGN
GNNFVTEKECLQTCRTVAACNLPIVRGPCRAFIQLWAFDAVKGKCVLFPYGGCQGNNGNKFYSEKEC
REYCGVPGDGDDELLRFSN

3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.



4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant Protein AMBP (Protein HC) [Cleaved into: Alpha-1-microglobulin (EC 1.6.2.-) (Alpha-1 microglycoprotein) (Complex-forming glycoprotein heterogeneous in charge); Inter-alpha-trypsin inhibitor light chain (ITI-LC) (Bikunin) (EDC1) (HI-30) (Uronic-acid-rich protein); Trypstatin] produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein Function: [Alpha-1-microglobulin]: Antioxidant and tissue repair protein with reductase, heme-binding and radical-scavenging activities. Removes and protects against harmful oxidants and repairs macromolecules in intravascular and extravascular spaces and in intracellular compartments (PubMed:11877257, PubMed:15683711, PubMed:22096585, PubMed:23157686, PubMed:23642167, PubMed:25698971, PubMed:32092412, PubMed:32823731). Intravascularly, plays a regulatory role in red cell homeostasis by preventing heme- and reactive oxygen species-induced cell damage. Binds and degrades free heme to protect fetal and adult red blood cells from hemolysis (PubMed:11877257, PubMed:32092412). Reduces extracellular methemoglobin, a Fe³⁺ (ferric) form of hemoglobin that cannot bind oxygen, back to the Fe²⁺ (ferrous) form deoxyhemoglobin, which has oxygen-carrying potential (PubMed:15683711). Upon acute inflammation, inhibits oxidation of low-density lipoprotein particles by MPO and limits vascular damage (PubMed:25698971). Extravascularly, protects from oxidation products formed on extracellular matrix structures and cell membranes. Catalyzes the reduction of carbonyl groups on oxidized collagen fibers and preserves cellular and extracellular matrix ultrastructures (PubMed:22096585, PubMed:23642167). Importantly, counteracts the oxidative damage at blood-placenta interface, preventing leakage of free fetal hemoglobin into the maternal circulation (PubMed:21356557). Intracellularly, has a role in maintaining mitochondrial redox homeostasis. Bound to complex I of the respiratory chain of mitochondria, may scavenge free radicals and preserve mitochondrial ATP synthesis. Protects renal tubule epithelial cells from heme-induced oxidative damage to mitochondria (PubMed:23157686, PubMed:32823731). Reduces cytochrome c from Fe³⁺ (ferric) to the Fe²⁺ (ferrous) state through formation of superoxide anion radicals in the presence of ascorbate or NADH/NADPH electron donor cofactors, ascorbate being the preferred cofactor (PubMed:15683711). Has a chaperone role in facilitating the correct folding of bikunin in the endoplasmic reticulum compartment (By similarity).; [Inter-alpha-trypsin inhibitor light chain]: Kunitz-type serine protease inhibitor and structural component of extracellular matrix with a role in extracellular space remodeling and cell adhesion (PubMed:20463016, PubMed:25301953). Among others, has antiprotease activity toward kallikrein, a protease involved in airway inflammation; inhibits GZMK/granzyme, a granule-stored serine protease involved in NK and T cell cytotoxic responses; and inhibits PLG/plasmin, a protease required for activation of matrix metalloproteinases (PubMed:10480954, PubMed:15917224, PubMed:16873769). As part of I-alpha-I complex, provides for the heavy chains to be transferred from I-alpha-I complex to hyaluronan in the presence of TNFAIP6, in a dynamic process that releases free bikunin and remodels extracellular matrix proteoglycan structures. Free bikunin, but not its heavy chain-bound form, acts as potent protease inhibitor in airway secretions (PubMed:16873769). Part of hyaluronan-rich extracellular matrix that surrounds oocyte during cumulus oophorus expansion, an indispensable process for proper ovulation (By similarity). Also inhibits calcium oxalate crystallization (PubMed:7676539).; [Trypstatin]: Kunitz-type serine protease inhibitor. Has high catalytic efficiency for F10/blood coagulation factor Xa and may act as an anticoagulant by inhibiting prothrombin activation. Inhibits trypsin and mast cell CMA1/chymase and tryptase proteases.

Subcellular Localization: [Alpha-1-microglobulin]: Secreted . Endoplasmic reticulum . Cytoplasm, cytosol . Cell membrane ; Peripheral membrane protein . Nucleus membrane ; Peripheral membrane

protein . Mitochondrion inner membrane ; Peripheral membrane protein . Secreted, extracellular space, extracellular matrix . Note=The cellular uptake occurs via a non-endocytotic pathway and allows for localization to various membrane structures. A specific binding to plasma membrane suggests the presence of a cell receptor, yet to be identified. Directly binds collagen fibers type I.; [Inter-alpha-trypsin inhibitor light chain]: Secreted .

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer-composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.