

Alpha 1 microglobulin Polyclonal Antibody

Purified Rabbit Polyclonal Antibody (Pab)

Catalog # AP58454

Product Information

Application	WB, IHC-P, IHC-F, IF, E
Primary Accession	P02760
Reactivity	Rat, Dog, Bovine
Host	Rabbit
Clonality	Polyclonal
Calculated MW	38999
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human Protein AMBP
Epitope Specificity	281-352/352
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SUBCELLULAR LOCATION	Secreted.
SIMILARITY	In the N-terminal section; belongs to the calycinsuperfamily. Lipocalin family. Contains 2 BPTI/Kunitz inhibitor domains.
SUBUNIT	I-alpha-I plasma protease inhibitors are assembled from one or two heavy chains (H1, H2 or H3) and one light chain, bikunin. Inter-alpha-inhibitor (I-alpha-I) is composed of H1, H2 and bikunin, inter-alpha-like inhibitor (I-alpha-LI) of H2 and bikunin, and pre-alpha-inhibitor (P-alpha-I) of H3 and bikunin. Alpha-1-microglobulin occurs as a monomer and also in complexes with IgA and albumin. Alpha-1-microglobulin interacts with FN1. Trypstatin is a monomer and also occurs as a complex with tryptase in mast cells (By similarity). Alpha-1-microglobulin and bikunin interact (via SH3 domain) with HEV ORF3 protein.
Post-translational modifications	The precursor is proteolytically processed into separately functioning proteins. 3-hydroxykynurenine, an oxidized tryptophan metabolite that is common in biological fluids, reacts with Cys-53, Lys-111, Lys-137, and Lys-149 to form heterogeneous polycyclic chromophores including hydroxanthommatin. The reaction by alpha-1-microglobulin is autocatalytic; the human protein forms chromophore even when expressed in insect and bacterial cells. The chromophore can react with accessible cysteines forming non-reducible thioether cross-links with other molecules of alpha-1-microglobulin or with other proteins such as Ig alpha-1 chain C region 'Cys-352'. Heavy chains are interlinked with bikunin via a chondroitin4-sulfate bridge to the their C-terminal aspartate (By similarity). N- and O-glycosylated. N-glycan heterogeneity at Asn-115: Hex5HexNAc4 (major), Hex6HexNAc5 (minor) and dHex1Hex6HexNAc5 (minor). N-glycan at Asn-250: Hex5HexNAc4. O-linkage of the glycosaminoglycan, chondroitin sulfate, at Ser-215 allows cross-linking between the three polypeptide chains.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	This gene encodes a complex glycoprotein secreted in plasma. The precursor is proteolytically processed into distinct functioning proteins:

alpha-1-microglobulin, which belongs to the superfamily of lipocalin transport proteins and may play a role in the regulation of inflammatory processes, and bikunin, which is a urinary trypsin inhibitor belonging to the superfamily of Kunitz-type protease inhibitors and plays an important role in many physiological and pathological processes. This gene is located on chromosome 9 in a cluster of lipocalin genes.

Additional Information

Gene ID	259
Other Names	Protein AMBP, Alpha-1-microglobulin, Protein HC, 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, AMBP, HCP, ITIL
Target/Specificity	Expressed by the liver and secreted in plasma. Alpha-1-microglobulin occurs in many physiological fluids including plasma, urine, and cerebrospinal fluid. Inter-alpha-trypsin inhibitor is present in plasma and urine.
Dilution	WB=1:500-2000, IHC-P=1:100-500, IHC-F=1:100-500, IF=1:100-500, ELISA=1:5000-10000
Format	0.01M TBS (pH 7.4) with 1% BSA, 0.09% (W/V) sodium azide and 50% Glycerol
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	AMBP
Synonyms	HCP, ITIL
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 Fe ³⁺ (ferric) form of hemoglobin that cannot bind oxygen, back to the Fe ²⁺ (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).

Cellular Location

[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.

Tissue Location

[Alpha-1-microglobulin]: Expressed by the liver and secreted in plasma. Occurs in many physiological fluids including plasma, urine, and cerebrospinal fluid (PubMed:[11877257](#)). Expressed in epidermal keratinocytes, in dermis and epidermal-dermal junction (at protein level) (PubMed:[22096585](#)). Expressed in red blood cells (at protein level) (PubMed:[32092412](#)). Expressed in placenta (PubMed:[21356557](#)).

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.