

## Alpha-2-macroglobulin Protein, Human (sf9, His)

<b>Cat. No.:</b>	HY-P72823
<b>Synonyms:</b>	Alpha-2-macroglobulin; Alpha-2-M; A2M; CPAMD5
<b>Species:</b>	Human
<b>Source:</b>	Sf9 insect cells
<b>Accession:</b>	NP_000005.2 (S24-A1474)
<b>Gene ID:</b>	2
<b>Molecular Weight:</b>	160-170 kDa

### PROPERTIES

#### AA Sequence

SVSGKPQYMV	LVP SLLHTET	TEKGCVLLSY	LN ETVTVSAS
LESVRGNRS	LFTDLEAEND	VLHCVAFAVP	KSSSN E EVMF
LTVQVKGPTQ	EFKKRTTVMV	KNEDSLVFVQ	TDKSIYKPG
QTVKFRVISM	DENFHPLNEL	IPLVYIQDPK	GNRI AQWQSF
QLEGG LKQFS	FPLSSEPFQG	SYKVVVQKK	SGGRTEHPFT
VEEFVLPKFE	VQVTVPKIIT	ILEEEMNVSV	CGLYTYGKPV
PGHVTVSI CR	KYSDASDCHG	EDSQAFC EK	FSGQLNSHGC
FYQQVKTKVF	QLKRKEYEMK	LHTEAQIQEE	GTVVELTGRQ
SSEITRTITK	LSFVKVDSH	FRQGI PFFGQ	VRLVDGKGV P
IPNKVIFIRG	NEANYYSNAT	TDEHGLVQFS	INTTNVMGTS
LTVRVNYKD	RSPCYGYQWV	SEEHEEAHHT	AYLVFSPSKS
FVHLEPMSHE	LPCGHTQTVQ	AHYILNGGTL	LGLKKLSFY
YLIMAKGGIV	RTGTHGLLVK	QEDMKGHFSI	SIPVKS DIAP
VARLLIYAVL	PTGDVIGDSA	KYDVENCLA	NKVDLSFSPS
QSLPASHAHL	RVTAAPQSVC	ALRAVDQSVL	LMKPDAELSA
SSVYNLLPEK	DLTGFP GPL	NDQDDEDCIN	RHNVYINGIT
YTPVSSSTNEK	DMYSFLED MG	LKAFTNSKIR	KPKMCPQLQQ
YEMHGPEGL	RVGFYESDVM	GRGHARLVHV	E EPH TETVRK
YFPETWIWDL	VVVNSAGVAE	VGVTVPDTIT	EWKAGAFCL
SEDAGLGISS	TASLRAFQPF	FVELTMPYSV	IRGEAFTLKA
TVLN YLPKCI	RVS VQLEASP	AFLAVPVEK	EQAPHCICAN
GRQTVSWAVT	PKSLGNVNFT	VSAEAL ESQE	LCGTEVPSVP
EHGRKDTVIK	PLLVEPEGL	EKETTFNSLL	CPSGGEVSEE
LSLKLPPNVV	EESARASVSV	LGDILGSAMQ	NTQNL LQMPY
GCGEQNMVLF	APNIYVLDY	LN E TQQLTPE	IKSKAIGYLN
TGYQRQLNYK	HYDGSYSTFG	ERYGRNQGNT	WLTAFVLKTF
AQARAYIFI	DEAHITQALI	WLSQRQKDNG	CFRSSGSLLN
NAIKGGVEDE	VTLSAYITIA	LLEIPLTVTH	PVVRNALFC
LES AWKTAQE	GDHGSHVYTK	ALLAYAFALA	GNQDKRKEVL
KSLNEEAVKK	DNSVHWERPQ	KPKAPVGHF	YEPQAPSAEV
EMTSYVLLAY	LTAQPAPTSE	DLTSATNIVK	WITKQQNAQG

G F S S T Q D T V V	A L H A L S K Y G	A A T F T R T G K A	A Q V T I Q S S G T
F S S K F Q V D N N	N R L L L Q Q V S L	P E L P G E Y S M K	V T G E G C V Y L Q
T S L K Y N I L P	E K E E F P F A L G	V Q T L P Q T C D E	P K A H T S F Q I S
L S V S Y T G S R S	A S N M A I V D V K	M V S G F I P L K P	T V K M L E R S N
H V S R T E V S S N	H V L I Y L D K V S	N Q T L S L F F T V	L Q D V P V R D L K
P A I V K V Y D Y Y	E T D E F A I A E Y	N A P C S K D L G	N A

<b>Biological Activity</b>	Measured by its ability to trap trypsin. The trapped trypsin is no longer able to interact with protein substrates or inhibitors, but still able to cleave small peptide substrates or inhibitors. The IC <sub>50</sub> value is <5 nM.
<b>Appearance</b>	Solution
<b>Formulation</b>	Supplied as a 0.2 µm filtered solution of 20 mM Tris, 150 mM NaCl, 20% glycerol, pH 7.4
<b>Endotoxin Level</b>	<1 EU/µg, determined by LAL method.
<b>Reconstitution</b>	N/A
<b>Storage &amp; Stability</b>	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
<b>Shipping</b>	Shipping with dry ice

## DESCRIPTION

### Background

Alpha-2-macroglobulin (A2M), a protease inhibitor and cytokine transporter, belongs to the MEROPS proteinase inhibitor family I39, clan IL. It is also a large plasma protein found in the blood. It is mainly produced by the liver, and also locally synthesized by macrophages, fibroblasts, and adrenocortical cells. The inhibitor acts on all classes of endoproteases and could potentially be used to slow or halt PTOA by neutralizing catabolic cascades in affected cartilage. A2M can enter into cells and bind to numerous cytokines, including transforming growth factor-beta 1 (TGF-β1), TGF-β2, nerve growth factor-beta, platelet-derived growth factor-BB, tumor necrosis factor-alpha (TNF-α), and basic fibroblast growth factor. A2M inhibits inflammatory mediators of chondrocytes by blocking IL-1β/NF-κB pathway. A2M as a novel disease modifying protein in osteoporosis, downregulation of which in bone marrow promotes SSPC dysfunction and imbalances in skeletal homeostasis<sup>[1][2][3]</sup>.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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