PRODUCT INFORMATION

α1-Microglobulin (human, recombinant)

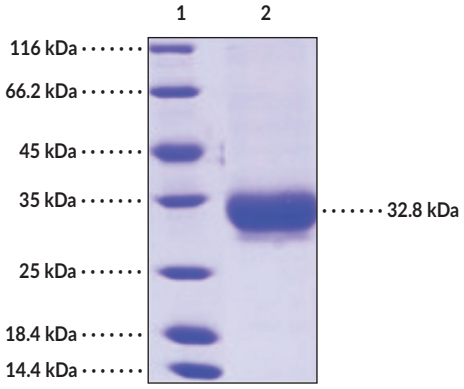
Item No. 38053

Overview and Properties

Synonyms:	A1M, α1-Microglycoprotein, Protein HC
Source:	Recombinant human C-terminal His-tagged α1-microglobulin expressed in HEK293 cells
Amino Acids:	20-203
Uniprot No.:	P02760
Molecular Weight:	22.3 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥95% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile PBS, pH 7.4
Endotoxin Testing:	<1.0 EU/µg, determined by the LAL endotoxin assay
Bioactivity:	See figure for details

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: α1-Microglobulin

SDS-PAGE Analysis of α1-Microglobulin. This protein has a calculated molecular weight of 22.3 kDa. It has an apparent molecular weight of approximately 32.8 kDa by SDS-PAGE under reducing conditions due to glycosylation.

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Description

α1-Microglobulin (A1M) is a glycoprotein and member of the lipocalin protein family encoded by the α1-microglobulin-bikunin precursor gene *AMBP*.[1,2] It is expressed in all tissues, except the CNS, and in blood.[2] A1M is synthesized in the liver, secreted into circulation where it forms complexes with IgA, albumin, and prothrombin, and subsequently equilibrated over the vessel wall between the intra- and extravascular compartments of all organs.[1,3] A1M is heterogenous in charge and size, covalently bound to chromophores, and exists in various glycoforms.[3] It binds free radicals, as well as heme, and has roles in various diseases involving oxidative stress. Plasma levels of A1M are increased and positively correlated with plasma peroxidation and the level of protein carbonyls in patients with preeclampsia.[3,4] Urinary levels of A1M are positively correlated with increased risk of acute kidney injury and other adverse events following cardiac surgery in adult patients.[5] Cayman's α1-Microglobulin (human, recombinant) protein consists of 195 amino acids, has a calculated molecular weight of 22.3 kDa, and a predicted N-terminus of Gly20 after signal peptide cleavage. By SDS-PAGE, under reducing conditions, the apparent molecular mass of the protein is 32.8 kDa due to glycosylation.

References

1. Bergwik, J., Kristiansson, A., Larsson, J., *et al.* Binding of the human antioxidation protein α_1-microglobulin (A1M) to heparin and heparan sulfate. Mapping of binding site, molecular and functional characterization, and co-localization *in vivo* and *in vitro*. *Redox Biol.* **41**, 101892 (2021).
2. Akerström, B., Lögdberg, L., Berggård, T., *et al.* α_1-Microglobulin: A yellow-brown lipocalin. *Biochim. Biophys. Acta* **1482(1-2)**, 172-184 (2000).
3. Bergwik, J., Kristiansson, A., Allhorn, M., *et al.* Structure, functions, and physiological roles of the lipocalin α_1-microglobulin (A1M). *Front. Physiol.* **12**, 645650 (2021).
4. Erlandsson, L., Masoumi, Z., Hansson, L.R., *et al.* The roles of free iron, heme, haemoglobin, and the scavenger proteins haemopexin and alpha-1-microglobulin in preeclampsia and fetal growth restriction. *J. Intern. Med.* **290(5)**, 952-968 (2021).
5. Amatruda, J.G., Estrella, M.M., Garg, A.X., *et al.* Urine alpha-1-microglobulin levels and acute kidney injury, mortality, and cardiovascular events following cardiac surgery. *Am. J. Nephrol.* **52(8)**, 673-683 (2021).

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