

OMA1 Protein, Human (Cell-Free, His-SUMO)

Cat. No.:	HY-P72010
Synonyms:	2010001O09Rik; DAB1; FLJ33782; Metalloendopeptidase OMA1; Metalloendopeptidase OMA1; mitochondrial; Metalloprotease-related protein 1; mitochondrial; MPRP 1; MPRP-1; MPRP1; OMA1; OMA1 homolog zinc metallopeptidase; OMA1 homolog; zinc metallopeptidase S. cerevisiae; ; OMA1 zinc metallopeptidase;
Species:	Human
Source:	E. coli Cell-free
Accession:	Q96E52 (H14-S524)
Gene ID:	115209
Molecular Weight:	Approximately 74.7 kDa

PROPERTIES

AA Sequence	<pre> H V F F R F N S L S N W R K C N T L A S T S R G C H Q V Q V N H I V N K Y Q G L G V N Q C D R W S F L P G N F H F Y S T F N N K R T G G L S S T K S K E I W R I T S K C T V W N D A F S R Q L L I K E V T A V P S L S V L H P L S P A S I R A I R N F H T S P R F Q A A P V P L L L M I L K P V Q K L F A I I V G R G I R K W W Q A L P P N K K E V V K E N I R K N K W K L F L G L S S F G L L F V V F Y F T H L E V S P I T G R S K L L L L G K E Q F R L L S E L E Y E A W M E E F K N D M L T E K D A R Y L A V K E V L C H L I E C N K D V P G I S Q I N W V I H V V D S P I I N A F V L P N G Q M F V F T G F L N S V T D I H Q L S F L L G H E I A H A V L G H A A E K A G M V H L L D F L G M I F L T M I W A I C P R D S L A L L C Q W I Q S K L Q E Y M F N R P Y S R K L E A E A D K I G L L L A A K A C A D I R A S S V F W Q Q M E F V D S L H G Q P K M P E W L S T H P S H G N R V E Y L D R L I P Q A L K I R E M C N C P P L S N P D P R L L F K L S T K H F L E E S E K E D L N I T K K Q K M D T L P I Q K Q E Q I P L T Y I V E K R T G S </pre>
Biological Activity	Measured by its binding ability in a functional ELISA. Immobilized OMA1 at 5 µg/mL can bind human BZW2, the EC ₅₀ of human BZM2 is 10.108-22.636 µg/mL.
Appearance	Lyophilized powder
Formulation	Lyophilized from a 0.2 µm solution of 10 mM Tris-HCl, 1 mM EDTA, 6% Trehalose, pH 8.0.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH ₂ O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background

Oma1 Protein, classified as a metalloprotease, operates within the inner mitochondrial membrane as a crucial component of the quality control system. In response to diverse mitochondrial stressors, OMA1 becomes activated, leading to the proteolytic cleavage of specific target proteins, including OPA1, UQC3, and DELE1. Under conditions causing a loss of mitochondrial membrane potential, OMA1 cleaves OPA1 at the S1 position, resulting in the inactivation of OPA1 and negative regulation of mitochondrial fusion. Moreover, OMA1 serves as a pivotal regulator of apoptosis, facilitating the remodeling of mitochondrial cristae through OPA1 cleavage upon BAK and BAX aggregation, thereby allowing the release of cytochrome c. In depolarized mitochondria, OMA1 may act as a backup protease for PINK1, mediating its cleavage and subsequent degradation by the proteasome. Additionally, OMA1 is implicated in the integrated stress response (ISR), cleaving DELE1 to generate the processed form (S-DELE1), which translocates to the cytosol and activates EIF2AK1/HRI, initiating the ISR. OMA1's role in mitochondrial quality control extends to the regulation of lipid metabolism, maintenance of respiratory supercomplex stability, and adaptation to cold-stress conditions by influencing body temperature and energy expenditure. Its binding to cardiolipin suggests a potential role in regulating cardiolipin turnover.

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

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