GZMA/Granzyme A Protein, Human (HEK293, His)

Cat. No.:	HY-P76377
Synonyms:	CTL tryptase; Cytotoxic T-lymphocyte proteinase 1; Fragmentin-1; Hanukkah factor; HF; CTLA3; HFSP
Species:	Human
Source:	HEK293
Accession:	NP_006135.1 (E27-V262)
Gene ID:	3001
Molecular Weight:	Approximately 27-33 kDa.

PROPERTIES

AA Sequence	E K I I G G N E V T P H S R P Y M V L L S L D R K T I C A G A L I A K D W V L T A A H C N L N K R S Q V I L G A H S I T R E E P T K Q I M L V K K E F P Y P C Y D P A T R E G D L K L L Q L T E K A K I N K Y V T I L H L P K K G D D V K P G T M C Q V A G W G R T H N S A S W S D T L R E V N I T I I D R K V C N D R N H Y N F N P V I G M N M V C A G S L R G G R D S C N G D S G S P L L C E G V F R G V T S F G L E N K C G D P R G P G V Y I L L S K K H L N W I I M T I K G A V
Biological Activity	Measured by its ability to cleave a colorimetric peptide substrate, N-carbobenzyloxy-Gly-Arg-ThioBenzyl ester (Z-GR-SBzl), in the presence of 5,5'-Dithio-bis (2-nitrobenzoic acid) (DTNB). The specific activity is >10875 pmol/min/μg, as measured under the described conditions.
Appearance	Lyophilized powder
Formulation	Lyophilized from a 0.2 μm filtered solution of PBS, pH 7.4 or 20 mM PB, 150 mM NaCl, pH 7.4.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
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	Granzyme A (GZMA) is a highly abundant protease found in the cytosolic granules of cytotoxic T-cells and natural killer cells, playing a crucial role in immune defense mechanisms. When delivered into the target cell through the immunological synapse, GZMA activates caspase-independent pyroptosis. It exhibits a substrate specificity for cleavage after lysine or

arginine residues. Notably, GZMA cleaves APEX1 after 'Lys-31,' disrupting its oxidative repair activity. Additionally, it targets the nucleosome assembly protein SET, cleaving it after 'Lys-189.' This cleavage event disrupts SET's nucleosome assembly activity and facilitates the translocation of the SET complex into the nucleus, where it is involved in nicking and degrading DNA. The multifunctional activities of GZMA underscore its significance in orchestrating diverse cellular processes during immune responses.

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