

Recombinant Human GRAK Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP50388

Size: 10ug, 100ug

Protein Name: Granzyme K (GrK) (EC 3.4.21.-) (Fragmentin-3) (Granzyme-3) (NK-tryptase-2) (NK-Tryp-2)

Synonym: GZMK, TRYP2

UniProt ID: P49863

UniProt Link: www.uniprot.org/uniprotkb/P49863/entry

Species Source: Human

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 264 AA

Molecular Weight: 29 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MTKFSSFSFLFLIVGAYMTHVCFNMEIIGGKEVSPHSRPFMASIQYGGHHVCGGVLDIPQWVLTAAH
CQYRFTKGQSPTVVLGAHSLSKNEASKQTLEIKKFIPFSRVTSDPQSNIDIMLVKLQTAAKLNKHVKML
HIRSKTSLRSGTKCKVTGWGATDPDSLPSDTLREVTVTVLSRKLCNSQSYNGDPFITKDMVCAG
DAKGQKDSCKGDSGGPLICKGVFHAIVSGGHECGVATKPGIYTLLTKKYQTWIKSNLVPHTN

3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant Granzyme K (GrK) (EC 3.4.21.-) (Fragmentin-3) (Granzyme-3) (NK-tryptase-2) (NK-Tryp-2) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein Function: Serine protease that initiates the GZMK pathway of the complement system, a cascade of proteins directly activated by CD8(+) T-cells that leads to phagocytosis and breakdown of pathogens and signaling that strengthens the adaptive immune system (PubMed:3262682, PubMed:39814882, PubMed:39914456). GZMK is specifically secreted by CD8(+) T-cells and mediates both recognition and initiation steps of GZMK complement pathway (PubMed:39914456). First acts as a pattern recognition receptor, which specifically recognizes and binds heparan sulfate glycosaminoglycans on the pathogen surface to drive opsonization (PubMed:39914456). It then initiates the complement pathway cascade by catalyzing cleavage and activation of C2 and C4, the next components of the complement pathway (PubMed:39814882, PubMed:39914456). GZMK-mediated complement activation is an important contributor to tissue inflammation (PubMed:24711407, PubMed:33271118, PubMed:35704599, PubMed:39614076, PubMed:39814882, PubMed:39914456). Also able to cleave and activate F2R/PAR1 and PAR2/F2RL1, possibly promoting interleukin release (PubMed:21760880, PubMed:26936634, PubMed:35881628). May also regulate apoptosis by catalyzing cleavage and activation of BID, thereby promoting cytochrome C release from mitochondria (PubMed:17308307).

Subcellular Localization: Secreted . Cell surface . Cytoplasmic granule . Note=Constitutively secreted by CD8(+) T-cells in the absence of TCR stimulation (PubMed:39914456). Specifically binds heparan sulfate glycosaminoglycans on the surface of pathogens (PubMed:39914456).

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer-composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.