APA599Hu01 100μg
Active Granzyme A (GZMA)
Organism Species: *Homo sapiens* (Human)
Instruction manual

FOR RESEARCH USE ONLY
NOT FOR USE IN CLINICAL DIAGNOSTIC PROCEDURES

13th Edition (Revised in Aug, 2023)

[PROPERTIES]

Source: Prokaryotic expression.
Host: *E. coli*
Residues: Ile29~Val262
Tags: N-terminal His-tag
Purity: >90%
Endotoxin Level: <1.0EU per 1μg (determined by the LAL method).
Buffer Formulation: PBS, pH7.4, containing 0.01% Sarcosyl, 5%Trehalose .
Original Concentration: 200μg/mL
Applications: Activity Assays.
(May be suitable for use in other assays to be determined by the end user.)
Predicted isoelectric point: 9.2
Predicted Molecular Mass: 29.5kDa
Accurate Molecular Mass: 30kDa as determined by SDS-PAGE reducing conditions.

[USAGE]

Reconstitute in 10mM PBS (pH7.4) to a concentration of 0.1-1.0 mg/mL. Do not vortex.

[STORAGE AND STABILITY]

Storage: Avoid repeated freeze/thaw cycles.
Store at 2-8ºC for one month.
Aliquot and store at -80ºC for 12 months.

Stability Test: The thermal stability is described by the loss rate. The loss rate was determined by accelerated thermal degradation test, that is, incubate the protein at 37ºC for 48h, and no obvious degradation and precipitation were observed. The loss rate is less than 5% within the expiration date under appropriate storage condition.

[SEQUENCE]

II GGNEVTPHSR PYMVLLSLDR
KTICAGALIA KDWVLTAAHC NLNKRSQVIL GAHSITREEP TKQIMLVKKE
FPYPCYDPAT REGDLKLLQL MEKAKINKYV TILHLPKKGD DVKPGTMCQV
AGWGRTHNSA SWSDTLREVN ITIIDRKVCN DRNHYNFNPV IGMNMVCAGS
LRGGRDSCNG DSGSPLLCEG VFRGVTSFGL ENKCGDPRGP GVYILLSKKH
LNWIIMTIKG AV

[ACTIVITY]

Granzyme A (GZMA) is a serine protease chiefly released by cytotoxic T lymphocytes (CTLs) and natural killer (NK) cells, playing essential roles in both adaptive and innate immunity. As a central component of the granule exocytosis pathway, GZMA facilitates the eradication of target cells—such as those infected by viruses, transformed tumors, or harboring intracellular pathogens. In contrast to Granzyme B, which predominantly induces mitochondrial apoptosis, GZMA activates a distinct caspase-independent cell death pathway by cleaving specific intracellular substrates, thereby disrupting vital cellular processes. Beyond its direct cytotoxic function, GZMA also contributes to the modulation of inflammatory responses and immune cell activation. Furthermore, it directly interacts with nucleolin (NCL), cleaving it into specific proteolytic fragments.To detect the activity of recombinant GZMA, a functional ELISA assay was performed to evaluate the interaction between recombinant human GZMA and recombinant mouse NCL.Briefly, biotin-linked GZMA were diluted serially in PBS, with 0.01% BSA (pH 7.4). Duplicate samples of 100μl were then transferred to NCL-coated microtiter wells and incubated for 1h at 37℃. Wells were washed with PBST 3 times and incubation with Streptavidin-HRP for 30min, then wells were aspirated and washed

5 times. With the addition of substrate solution, wells were incubated 15-25 minutes at 37℃. Finally, add 50μl stop solution to the wells and read at 450nm immediately. The binding activity of GZMA and NCL was shown in Figure 1, the EC50 for this effect is 0.185μg/mL.

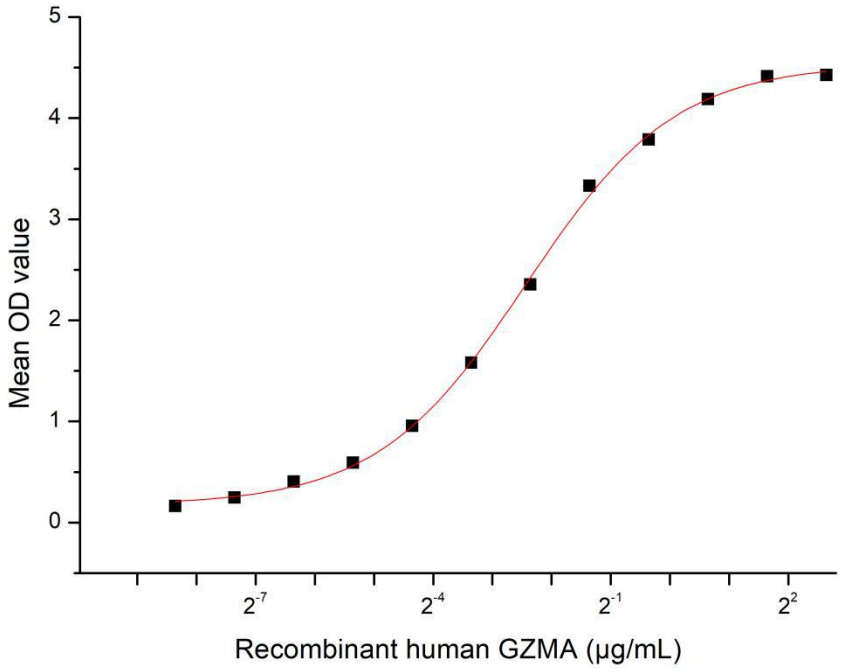

Figure 1. The binding activity of recombinant human GZMA and recombinant mouse NCL

[IDENTIFICATION]

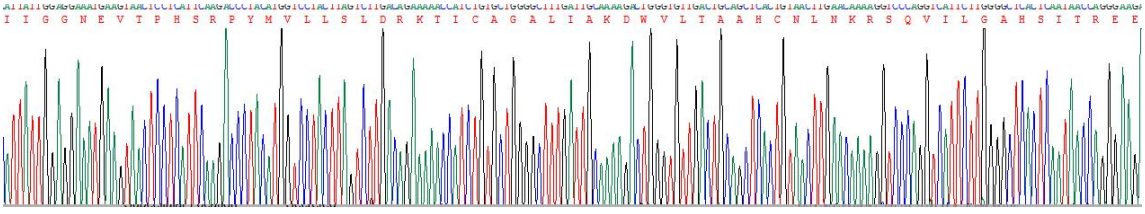

Figure 2. Gene Sequencing (extract)

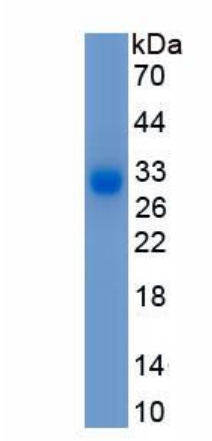

Figure 3. SDS-PAGE

Sample: Active recombinant GZMA, Human

[IMPORTANT NOTE]

The kit is designed for research use only, we will not be responsible for any issue if the kit was used in clinical diagnostic or any other procedures.