APD993Hu01 100μg
Active Cathepsin G (CTSG)
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: Ile21~Leu255
Tags: N-terminal His-tag
Purity: >80%
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: 11.4
Predicted Molecular Mass: 56.8kDa
Accurate Molecular Mass: 57kDa 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]

IIGGRESRPH SRPYMAYLQI QSPAGQSRCG
GFLVREDFVL TAAHCWGSNI NVTLGAHNIQ RRENTQQHIT ARRAIRHPQY
NQRTIQNDIM LLQLSRRVRR NRNVNPVALP RAQEGLRPGT LCTVAGWGRV
SMRRGTDTLR EVQLRVQRDR QCLRIFGSYD PRRQICVGDR RERKAAFKGD
SGGPLLCNNV AHGIVSYGKS SGVPPEVFTR VSSFLPWIRT TMRSFKLLDQ
METPL

[ACTIVITY]

Cathepsin G (CTSG, D993Hu) is a 255-amino-acid serine protease belonging to the peptidase S1 and chymotrypsin families. Encoded by the CTSG gene on human chromosome 14q11.2, it is predominantly stored in the azurophil granules of neutrophils and monocytes. As a key immune protease, CTSG functions intracellularly to degrade engulfed pathogens and extracellularly to break down extracellular matrix (ECM) components at inflammatory sites. It exhibits broad-spectrum antibacterial activity against Gram-positive and Gram-negative bacteria, independent of its proteolytic activity. Beyond pathogen clearance, CTSG regulates inflammation by processing chemokines, cytokines, and cell-surface receptors, and participates in thrombosis and vascular remodeling. Dysregulation of CTSG is linked to chronic inflammation, autoimmune diseases, and cancer metastasis. CTSG directly binds and proteolytically cleaves pro-MMP9 (A553Ca) to convert it into its active, functional matrix-degrading form. Thus a functional ELISA assay was conducted to detect the interaction of recombinant human CTSG and recombinant dog MMP9. Briefly, CTSG was diluted serially in PBS with 0.01% BSA (pH 7.4). Duplicate samples of 100 μl were then transferred to MMP9-coated microtiter wells and incubated for 1h at 37℃. Wells were washed

with PBST and incubated for 1h with anti-CTSG pAb, then aspirated and washed 3 times. After incubation with HRP labelled secondary antibody for 1h at 37℃, wells were aspirated and washed 5 times. With the addition of substrate solution, wells were incubated 15-25 minutes at 37℃. Finally, add 50 μL stop solution to the wells and read at 450/630nm immediately. The binding activity of recombinant human CTSG and recombinant dog MMP9 was shown in Figure 1, the EC50 for this effect is 0.0158 μg/mL.

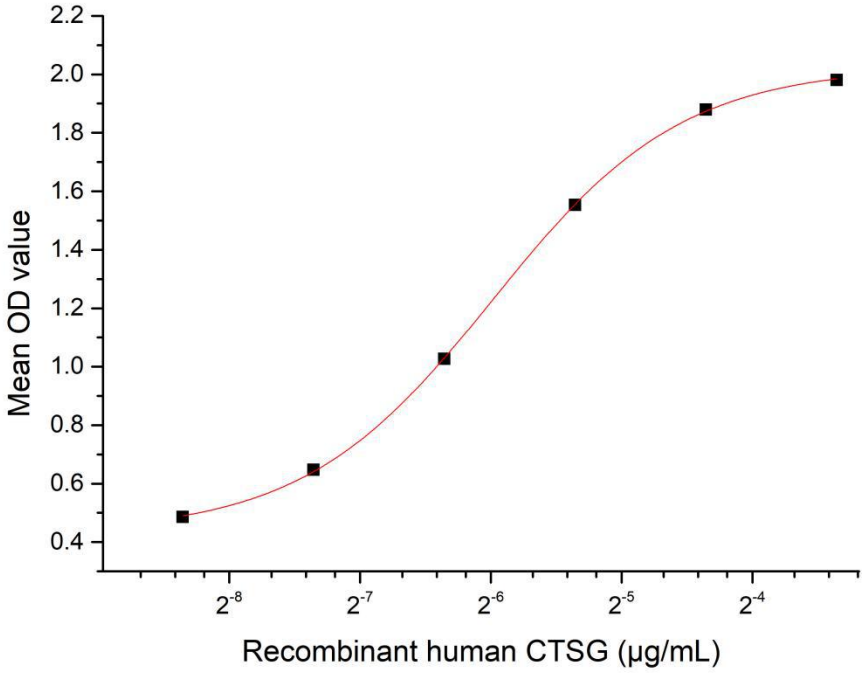

Figure 1. The binding activity of recombinant human CTSG and dog MMP9

[IDENTIFICATION]

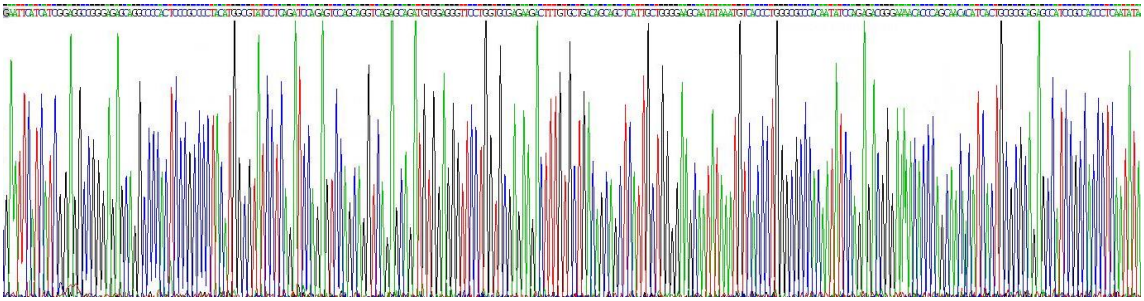

Figure 2. Gene Sequencing (extract)

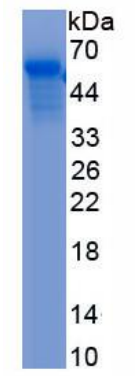

Figure 3. SDS-PAGE

Sample: Active recombinant CTSG, 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.