Human Cathepsin S / CTSS Protein (His Tag)

Catalog Number: **10487-H08H**

General Information

Gene Name Synonym:

CTSS; MGC3886

Protein Construction:

A DNA sequence encoding the pro form of human CTSS (NP_004070.3) (Met 1-Ile 331) with a carboxy-terminal polyhistidine tag was expressed.

Source: Human

Expression Host: HEK293 Cells

QC Testing

Purity: > 90 % as determined by SDS-PAGE

Bio Activity:

Measured by its ability to cleave a fluorogenic peptide substrate, (7-methoxycoumarin-4-yl) acetyl-Arg-Pro-Lys-Pro-Val-Glu-Nva-Trp-Arg-Lys (2, 4-dinitrophenyl)-NH2 (R&D Systems, Catalog#ES002). Cleavage of ES002 can be measured using excitation and emission wavelength at 320 nm and 405 nm, respectively. The specific activity is >300 pmoles/min/μg . (Activation description: The enzyme achieves its activity under acidic pH)

Endotoxin:

< 1.0 EU per μg of the protein as determined by the LAL method

Stability:

Samples are stable for up to twelve months from date of receipt at -70 ℃

Predicted N terminal: Gln 17

Molecular Mass:

The secreted recombinant human CTSS consists of 326 amino acids with the predicted molecular mass of 37 kDa as estimated by SDS-PAGE under reducing conditions.

Formulation:

Lyophilized from sterile PBS, pH 7.4

Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization. Specific concentrations are included in the hardcopy of COA. Please contact us for any concerns or special requirements.

Usage Guide

Storage:

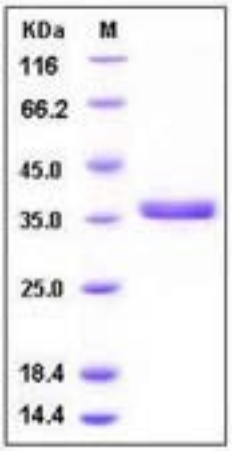
Store it under sterile conditions at -20℃ to -80℃ upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

Avoid repeated freeze-thaw cycles.

Reconstitution:

Detailed reconstitution instructions are sent along with the products.

SDS-PAGE:



Protein Description

Cathepsin S (CTSS), one of the lysosomal proteinases, has many important physiological functions in the nervous system, especially in process of extracellular matrix degradation and endocellular antigen presentation. CTSS is synthesized as inactive precursor of 331 amino acids consisting of a 15-aa signal peptide, a propeptide of 99 aa, and a mature polypeptide of 217 aa. It is activated in the lysosomes by a proteolytic cleavage of the propeptide. Cathepsin S is expressed in the lysosome of antigen presenting cells, primarily dendritic cells, B-cells and macrophages. Compared with other lysosomal cysteine proteases, cathepsin S has displayed some unique characteristics. Cathepsin S is most well known for its critical function in the proteolytic digestion of the invariant chain chaperone molecules, thus controlling antigen presentation to CD4+ T-cells by major histocompatibility complex (MHC) class II molecules or to NK1.1+ T-cells via CD1 molecules. Cathepsin S also appears to participate in direct processing of exogenous antigens for presentation by MHC class II to CD4+ T-cells, or in cross-presentation by MHC class I molecules to CD8+ T-cells. In addition, although direct evidence is still lacking, in its secreted form cathepsin S is implicated in degradation of the extracellular matrix, which may contribute to the pathology of a number of diseases, including arthritis, atherosclerosis, neurological diseases and chronic obstructive pulmonary disease.

References

1.Liu W, *et al.* (2004) Cysteine protease cathepsin S as a key step in antigen presentation. Drug News Perspect. 17(6): 357-63. 2.Thurmond RL, *et al.* (2005) Cathepsin S inhibitors as novel immunomodulators. Curr Opin Investig Drugs. 6(5): 473-82. 3.Wang DM, *et al.* (2008) Cathepsin S in pathogenesis of neurological diseases. Zhejiang Da Xue Xue Bao Yi Xue Ban. 37(4): 422-6.