

cathepsin W (E-9): sc-514373

BACKGROUND

Cathepsin W (lymphopain) and cathepsin F comprise a novel subgroup of cathepsin proteases, and are phylogenetically distinct from other human cathepsins. The cathepsin W gene maps to chromosome 11q13.1 and contains ten exons with introns ranging from 81-119 bp. Cathepsin W protein is expressed specifically in CD8⁺ T-lymphocyte. The expression of cathepsin W first occurs during the differentiation of thymocytes to CD8⁺ T-lymphocytes, just as the thymocytes cease expression of CD4⁺ receptors. In transfected Cos-7 and Hela cells, cathepsin W localizes within the rough endoplasmic reticulum. Cathepsin W contains a unique 21-amino acid peptide insertion between the active site histidine and asparagine residues, in addition to a distinctive 8-amino acid carboxy-terminal extension. An extended loop structure in the second or β -sheet domain and an additional disulfide bond are two of several signature features of cathepsin W. Other features of cathepsin W include an additional cysteine, an S2 pocket and an additional residue. Cathepsin W may exist as a dimer with each monomer forming a disulfide bond.

REFERENCES

1. Linnevers, C., Smeekens, S.P. and Bromme, D. 1997. Human cathepsin W, a putative cysteine protease predominantly expressed in CD8⁺ T-lymphocytes. *FEBS Lett.* 405: 253-259.
2. Wex, T., Levy, B., Smeekens, S.P., Ansorge, S., Desnick, R.J. and Bromme, D. 1998. Genomic structure, chromosomal localization, and expression of human cathepsin W. *Biochem. Biophys. Res. Commun.* 248: 255-261.
3. Wex, T., Levy, B., Wex, H. and Bromme, D. 1999. Human cathepsins F and W: a new subgroup of cathepsins. *Biochem. Biophys. Res. Commun.* 259: 401-407.
4. Bhandoolla, A., Kithiganahalli, B., Granger, L. and Singer, A. 2000. Programming for cytotoxic effector function occurs concomitantly with CD4 extinction during CD8⁺ T cell differentiation in the thymus. *Int. Immunol.* 12: 1035-1040.
5. Brinkworth, R.I., Tort, J.F., Brindley, P.J. and Dalton, J.P. 2000. Phylogenetic relationships and theoretical model of human cathepsin W (lymphopain), a cysteine proteinase from cytotoxic T lymphocytes. *Int. J. Biochem. Cell Biol.* 32: 373-384.

CHROMOSOMAL LOCATION

Genetic locus: CTSW (human) mapping to 11q13.1.

SOURCE

cathepsin W (E-9) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 277-298 within an internal region of cathepsin W of human origin.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-514373 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

cathepsin W (E-9) is recommended for detection of cathepsin W of human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for cathepsin W siRNA (h): sc-72807, cathepsin W shRNA Plasmid (h): sc-72807-SH and cathepsin W shRNA (h) Lentiviral Particles: sc-72807-V.

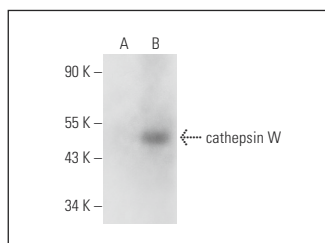
Molecular Weight of cathepsin W: 47 kDa.

Positive Controls: cathepsin W (h): 293T Lysate: sc-116060.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



cathepsin W (E-9): sc-514373. Western blot analysis of cathepsin W expression in non-transfected: sc-117752 (A) and human cathepsin W transfected: sc-116060 (B) 293T whole cell lysates.

RESEARCH USE

For research use only, not for use in diagnostic procedures.