SANTA CRUZ BIOTECHNOLOGY, INC.

cathepsin D (D-7): sc-377299

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The cathepsin family of proteolytic enzymes contains several diverse classes of proteases. The cysteine protease class comprises cathepsins B, L, H, K, S, and O. The aspartyl protease class is composed of cathepsins D and E. Cathepsin G is in the serine protease class. Most cathepsins are lysosomal and each is involved in cellular metabolism, participating in various events such as peptide biosynthesis and protein degradation. Cathepsins may also cleave some protein precursors, thereby releasing regulatory peptides. The promoter region of the cathepsin D gene contains five Sp1 binding sites and four AP-2 binding sites.

REFERENCES

1. Ishidoh, K., et al. 1987. Molecular cloning and sequencing of cDNA for rat cathepsin L. FEBS Lett. 223: 69-73.
2. Ishidoh, K., et al. 1987. Molecular cloning and sequencing of cDNA for rat cathepsin H. Homology in pro-peptide regions of cysteine proteases. FEBS Lett. 226: 33-37.
3. Redecker, B., et al. 1991. Molecular organization of the human cathepsin D gene. DNA Cell Biol. 10: 423-431.
4. Shi, G.P., et al. 1992. Molecular cloning and expression of human alveolar macrophage cathepsin S, an elastinolytic cysteine protease. J. Biol. Chem. 267: 7258-7262.

CHROMOSOMAL LOCATION

Genetic locus: CTSD (human) mapping to 11p15.5; Ctsd (mouse) mapping to 7 F5.

SOURCE

cathepsin D (D-7) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 383-411 at the C-terminus of cathepsin D of human origin.

PRODUCT

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

cathepsin D (D-7) is available conjugated to agarose (sc-377299 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-377299 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; and to either phycoerythrin (sc-377299 PE), fluorescein (sc-377299 FITC) or Alexa Fluor® 488 (sc-377299 AF488) or Alexa Fluor® 647 (sc-377299 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM.

Blocking peptide available for competition studies, sc-377299 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

STORAGE

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

APPLICATIONS

cathepsin D (D-7) is recommended for detection of cathepsin D of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (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 D siRNA (h): sc-29239, cathepsin D siRNA (m): sc-29934, cathepsin D siRNA (r): sc-270475, cathepsin D shRNA Plasmid (h): sc-29239-SH, cathepsin D shRNA Plasmid (m): sc-29934-SH, cathepsin D shRNA Plasmid (r): sc-270475-SH, cathepsin D shRNA (h) Lentiviral Particles: sc-29239-V, cathepsin D shRNA (m) Lentiviral Particles: sc-29934-V and cathepsin D shRNA (r) Lentiviral Particles: sc-270475-V.

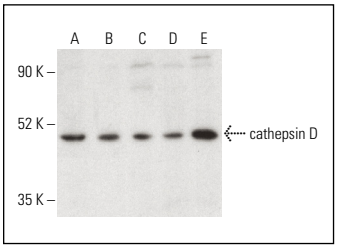
Molecular Weight of immature cathepsin D: 52 kDa.

Molecular Weight of intermediate cathepsin D: 46 kDa.

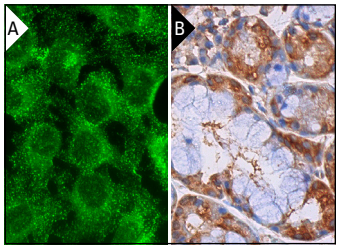
Molecular Weight of mature cathepsin D: 33 kDa.

Positive Controls: Ramos cell lysate: sc-2216, RAW 264.7 whole cell lysate: sc-2211 or 3T3-L1 cell lysate: sc-2243.

DATA



cathepsin D (D-7): sc-377299. Western blot analysis of cathepsin D expression in ZR-75-1 (**A**), NAMALWA (**B**), Ramos (**C**), RAW 264.7 (**D**) and 3T3-L1 (**E**) whole cell lysates. Detection reagent used: m-IgGκ BP-HRP: sc-516102.



cathepsin D (D-7): sc-377299. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic vesicles localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human salivary gland tissue showing cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Liu, H., et al. 2015. Inhibition of autophagy recovers cardiac dysfunction and atrophy in response to tail-suspension. Life Sci. 121: 1-9.
2. Zi-Qi, L., et al. 2020. NADPH protects against kainic acid-induced excitotoxicity via autophagy-lysosome pathway in rat striatum and primary cortical neurons. Toxicology 435: 152408.
3. Ikeda, S., et al. 2021. YAP plays a crucial role in the development of cardiomyopathy in lysosomal storage diseases. J. Clin. Invest. 131: e143173.
4. Xie, Z., et al. 2022. Microglial cathepsin E plays a role in neuroinflammation and amyloid β production in Alzheimer's disease. Aging Cell 21: e13565.

RESEARCH USE

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