

cathepsin 6 (V-12): sc-241337

BACKGROUND

The cathepsin family of proteolytic enzymes contains several diverse classes of proteases. Cathepsin 6 is a member of the C1A papain family. It is a cysteine peptidase exclusively expressed in labyrinthine trophoblastic cells of the murine placenta where it colocalizes with its closest relative, Cathepsin J/P. Cathepsin 6 may be involved in mediating the gas and nutrient exchange between maternal and fetal blood. In addition, it may play a role in immunological modulation or processing of secretory protein factors. Cathepsin 6 expression is regulated during mouse embryonic development. The placentally expressed cathepsin genes, Cathepsin M, J/P, Q, R, 1, 2, 3 and 6, are located in a tight cluster on chromosome 13. They are found in mice and rats, but homologs of these genes are not found in humans.

REFERENCES

1. Nakajima, A., Kataoka, K., Takata, Y. and Huh, N.H. 2001. Cathepsin-6, a novel cysteine proteinase showing homology with and co-localized expression with cathepsin J/P in the labyrinthine layer of mouse placenta. *Biochem. J.* 349: 689-692.
2. Deussing, J., Kouadio, M., Rehman, S., Werber, I., Schwinde, A. and Peters, C. 2002. Identification and characterization of a dense cluster of placenta-specific cysteine peptidase genes and related genes on mouse chromosome 13. *Genomics* 79: 225-240.
3. Puente, X.S., Sánchez, L.M., Overall, C.M. and López-Otín, C. 2003. Human and mouse proteases: a comparative genomic approach. *Nat. Rev. Genet.* 4: 544-558.
4. Uinuk-Ool, T.S., Takezaki, N., Kuroda, N., Figueroa, F., Sato, A., Samonte, I.E., Mayer, W.E. and Klein, J. 2003. Phylogeny of antigen-processing enzymes: cathepsins of a cephalochordate, an agnathan and a bony fish. *Scand. J. Immunol.* 58: 436-448.
5. Ishida, M., Ono, K., Taguchi, S., Ohashi, S., Naito, J., Horiguchi, K. and Harigaya, T. 2004. Cathepsin gene expression in mouse placenta during the latter half of pregnancy. *J. Reprod. Dev.* 50: 515-523.
6. Juriloff, D.M., Harris, M.J. and Dewell, S.L. 2004. A digenic cause of cleft lip in A-strain mice and definition of candidate genes for the two loci. *Birth Defects Res. Part A Clin. Mol. Teratol.* 70: 509-518.
7. Bode, S., Peters, C. and Deussing, J.M. 2005. Placental cathepsin M is alternatively spliced and exclusively expressed in the spongiotrophoblast layer. *Biochim. Biophys. Acta* 1731: 160-167.
8. Varanou, A., Withington, S.L., Lakasing, L., Williamson, C., Burton, G.J. and Hemberger, M. 2006. The importance of cysteine cathepsin proteases for placental development. *J. Mol. Med.* 84: 305-317.

CHROMOSOMAL LOCATION

Genetic locus: Cts6 (rat) mapping to 17p14.

STORAGE

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

SOURCE

cathepsin 6 (V-12) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of cathepsin 6 of rat origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-241337 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

cathepsin 6 (V-12) is recommended for detection of cathepsin 6 of rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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); non cross-reactive with other cathepsin family members.

Molecular Weight of cathepsin 6: 41 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.