



cathepsin R (E-14): sc-32167

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. Cathepsin G expression is restricted to bone marrow and early myeloid cells. RT-PCR analysis indicates that cathepsin R is only expressed in placenta and thus is a new member of the emerging family of cathepsins whose expression is regulated during mouse embryonic development. The mouse placentally expressed cathepsin genes, cathepsin M, P, Q, R, 1, 2, 3 and 6, are located in a tight cluster on chromosome 13. Cathepsin M, Q and R are found in mice and rats, but homologs of these genes are not found in humans or rabbits.

REFERENCES

- Ishidoh, K., Towatari, T., Imajoh, S., Kawasaki, H., Kominami, E., Katunuma, N. and Suzuki, K. 1987. Molecular cloning and sequencing of cDNA for rat cathepsin L. *FEBS Lett.* 223: 69-73.
- Ishidoh, K., Imajoh, S., Emori, Y., Ohno, S., Kawasaki, H., Minami, Y., Kominami, E., Katunuma, N. and Suzuki, K. 1987. Molecular cloning and sequencing of cDNA for rat cathepsin H. Homology in pro-peptide regions of cysteine proteases. *FEBS Lett.* 226: 33-37.
- Redecker, B., Heckendorf, B., Grosch, H.W., Mersmann, G. and Hasilik, A. 1991. Molecular organization of the human cathepsin D gene. *DNA Cell Biol.* 10: 423-431.
- Shi, G.P., Munger, J.S., Meara, J.P., Rich, D.H. and Chapman, H.A. 1992. Molecular cloning and expression of human alveolar macrophage cathepsin S, an elastolytic cysteine protease. *J. Biol. Chem.* 267: 7258-7262.
- Heusel, J.W., Scarpati, E.M., Jenkins, N.A., Gilbert, D.J., Copeland, N.G., Shapiro, S.D. and Ley, T.J. 1993. Molecular cloning, chromosomal location and tissue-specific expression of the murine cathepsin G gene. *Blood* 81: 1614-1623.
- Guenette, R.S., Mooibroek, M., Wong, K., Wong, P. and Tenniswood, M. 1994. Cathepsin B, a cysteine protease implicated in metastatic progression, is also expressed during regression of the rat prostate and mammary glands. *Eur. J. Biochem.* 226: 311-321.
- Shi, G.P., Chapman, H.A., Bhairi, S.M., DeLeeuw, C., Reddy, V.Y. and Weiss, S.J. 1995. Molecular cloning of human cathepsin O, a novel endoproteinase and homologue of rabbit OC2. *FEBS Lett.* 357: 129-134.
- Okamoto, K., Yu, H., Misumi, Y., Ikehara, Y. and Yamamoto, K. 1995. Isolation and sequencing of two cDNA clones encoding rat spleen cathepsin E and analysis of the activation of purified procathepsin E. *Arch. Biochem. Biophys.* 322: 103-111.
- Rantakokko, J., Aro, H.T., Savontaus, M. and Vuorio, E. 1996. Mouse cathepsin K: cDNA cloning and predominant expression of the gene in osteoclasts and in some hypertrophying chondrocytes during mouse development. *FEBS Lett.* 393: 307-313.

CHROMOSOMAL LOCATION

Genetic locus: Ctsr (mouse) mapping to 13 B2.

SOURCE

cathepsin R (E-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of cathepsin R of mouse 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-32167 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

cathepsin R (E-14) is recommended for detection of cathepsin R of mouse and 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).

Suitable for use as control antibody for cathepsin R siRNA (m): sc-44642.

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.

STORAGE

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

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.