SANTA CRUZ BIOTECHNOLOGY, INC.

PI-9 (h3): 293T Lysate: sc-158850

BACKGROUND

Serine proteinase inhibitors (serpins) function as regulators of serine proteinase activity in a variety of physiological processes. Proteinase inhibitor-9 (PI-9, also designated cytoplasmic antiproteinase 3, or CAP3) is a member of the Ovalbumin family of serpins that is expressed in placenta, lung and cytotoxic lymphocytes. PI-9 is a potent inhibitor of granzyme B and of granzyme B-mediated apoptosis, and is also an inhibitor of caspase-1 and, to a lesser extent, caspase-4 and caspase-8. Because granzyme B promotes DNA degradation and rapidly translocates to the nucleus to bind to a nuclear component, PI-9 is present in the nuclei of human cytotoxic cells, endothelial cells and epithelial cells. PI-9 is exported from nuclei via a leptomycin B-sensitive pathway, suggesting that the nucleocytoplasmic distribution of PI-9 involves a non-conventional nuclear import pathway and the export factor CRM1. Estrogen rapidly and strongly induces PI-9, which is an estrogen-regulated human gene. PI-9 expression is also upregulated in response to inflammatory stimuli. This upregulation protects cells from apoptosis induced by endogenously expressed or released granzyme B, particulary during target cell killling. In addition, PI-9 is expressed in a variety of human and murine tumors.

REFERENCES

1. Dahlen, J.R., et al. 1997. Human proteinase inhibitor-9 (PI-9) is a potent inhibitor of subtilisin A. Biochem. Biophys. Res. Commun. 238: 329-333.
2. Sun, J., et al. 1997. A new family of 10 murine Ovalbumin serpins includes two homologs of proteinase inhibitor-8 and two homologs of the granzyme B inhibitor (proteinase inhibitor-9). J. Biol. Chem. 272: 15434-15441.
3. Sun, J., et al. 1998. A serpin gene cluster on human chromosone 6p25 contains PI-6, PI-9 and ELANH$_2$ which have a common structure almost identical to the 18q21 Ovalbumin serpin genes. Cytogenet. Cell Genet. 82: 273-277.
4. Dahlen, J.R., et al. 1999. Inhibition of neutrophil elastase by recombinant human proteinase inhibitor-9. Biochem. Biophys. Acta 1451: 233-241.
5. Annand, R.R., et al. 1999. Caspase-1 (interleukin-1β-converting enzyme) is inhibited by the human serpin analogue proteinase inhibitor-9. Biochem. J. 342: 655-665.
6. Kanamori, H., et al. 2000. Proteinase inhibitor-9, an inhibitor of granzyme B-mediated apoptosis, is a primary estrogen-inducible gene in human liver cells. J. Biol. Chem. 275: 5867-5873.
7. Bird, C.H., et al. 2001. Nucleocytoplasmic distribution of the Ovalbumin serpin PI-9 requires a nonconventional nuclear import pathway and the export factor CRM1. Mol. Cell. Biol. 21: 5396-5407.
8. Buzza, M.S., et al. 2001. The granzyme B inhibitor, PI-9, is present in endothelial and mesothelial cells, suggesting that it protects bystander cells during immune respones. Cell. Immunol. 210: 21-29.

CHROMOSOMAL LOCATION

Genetic locus: SERPINB9 (human) mapping to 6p25.2.

RESEARCH USE

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

PRODUCT

PI-9 (h3): 293T Lysate represents a lysate of human PI-9 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

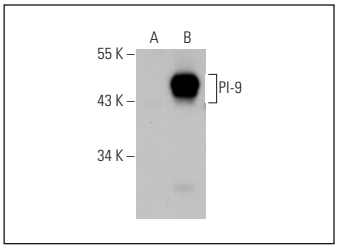
APPLICATIONS

PI-9 (h3): 293T Lysate is suitable as a Western Blotting positive control for human reactive PI-9 antibodies. Recommended use: 10-20 µl per lane.

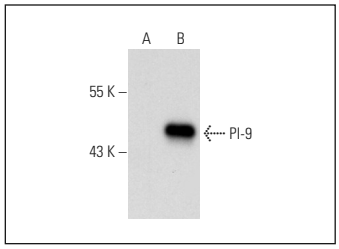
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

PI-9 (6D700): sc-71897 is recommended as a positive control antibody for Western Blot analysis of enhanced human PI-9 expression in PI-9 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

DATA



PI-9 (6D700): sc-71897. Western blot analysis of PI-9 expression in non-transfected: sc-117752 (**A**) and human PI-9 transfected: sc-158850 (**B**) 293T whole cell lysates.



PI-9 (7D8): sc-59983. Western blot analysis of PI-9 expression in non-transfected: sc-117752 (**A**) and human PI-9 transfected: sc-158850 (**B**) 293T whole cell lysates.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

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