SANTA CRUZ BIOTECHNOLOGY, INC.

PI-9 (6D700): sc-71897

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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 nonconventional 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.

CHROMOSOMAL LOCATION

Genetic locus: SERPINB9 (human) mapping to 6p25.2; Serpinb9 (mouse) mapping to 13 A3.3.

SOURCE

PI-9 (6D700) is a mouse monoclonal antibody raised against recombinant full length PI-9 of human origin.

PRODUCT

Each vial contains 500 µl culture supernatant containing IgG$_1$ with < 0.1% sodium azide and 0.7% stabilizer protein.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

APPLICATIONS

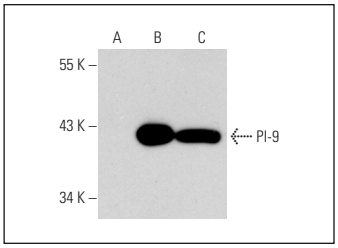
PI-9 (6D700) is recommended for detection of PI-9 of mouse, rat and human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:10-1:200), immunoprecipitation [10-20 µl per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution to be determined by researcher, dilution range 1:10-1:200), immunohistochemistry (including paraffin-embedded sections) (starting dilution to be determined by researcher, dilution range 1:10-1:200) and solid phase ELISA (starting dilution to be determined by researcher, dilution range 1:10-1:200); non cross-reactive with PI-6, PI-8 or PAI-2.

Suitable for use as control antibody for PI-9 siRNA (h): sc-40949, PI-9 siRNA (m): sc-152245, PI-9 shRNA Plasmid (h): sc-40949-SH, PI-9 shRNA Plasmid (m): sc-152245-SH, PI-9 shRNA (h) Lentiviral Particles: sc-40949-V and PI-9 shRNA (m) Lentiviral Particles: sc-152245-V.

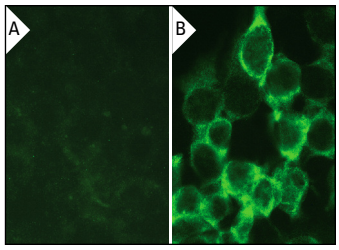
Molecular Weight of PI-9: 42 kDa.

Positive Controls: Ramos cell lysate: sc-2216, PI-9 (m): 293T Lysate: sc-122560 or K-562 whole cell lysate: sc-2203.

DATA



PI-9 (6D700): sc-71897. Western blot analysis of PI-9 expression in non-transfected 293T: sc-117752 (**A**), mouse PI-9 transfected 293T: sc-122560 (**B**) and Ramos (**C**) whole cell lysates.



PI-9 (6D700): sc-71897. Immunofluorescence staining of methanol-fixed untransfected (**A**) and human PI-9 transfected HEK 293T cells (**B**).

SELECT PRODUCT CITATIONS

1. Jiang, H., et al. 2014. Next generation sequencing analysis of miRNAs: MiR-127-3p inhibits glioblastoma proliferation and activates TGF-β signaling by targeting SKI. OMICS 18: 196-206.
2. Kuo, L.C., et al. 2017. Estrogen and cigarette sidestream smoke particulate matter exhibit ERα-dependent tumor-promoting effects in lung adenocarcinoma cells. Am. J. Physiol. Lung Cell. Mol. Physiol. 313: L477-L490.

RESEARCH USE

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

PROTOCOLS

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