SANTA CRUZ BIOTECHNOLOGY, INC.

pan granzyme (N-19): sc-1969

BACKGROUND

Granzyme A and granzyme B are serine proteases that mediate apoptotic signaling in cytotoxic T lymphocytes (CTL) and natural killer (NK) cells. Both granzyme A and granzyme B are synthesized as inactive proenzymes, and they are stored within cytolytic granules and released by effector cells during degranulation. In activated CTLs, granzyme A and granzyme B are processed and activated by cathepsin C, and they then function to induce apoptosis by two distinct pathways. Granzyme B proteolytically cleaves and activates members of the caspase family of cysteine proteases, including caspase-3, caspase-6, caspase-7 and caspase-9. When cleaved, these caspases assemble into active holoenzymes that then mediate apoptosis through a defined proteolytic cascade involving nuclear lamins and PARP (poly ADP ribose polymerase). Granzyme A mediates the activation of apoptosis by inducing single-strand DNA breaks, membrane perturbation and nuclear condensations in an alternative pathway that is independent from caspase activation or the caspase proteolytic cascade.

REFERENCES

1. Gershenfeld, H.K., et al. 1988. Cloning and chromosomal assignment of a human cDNA encoding a T cell- and natural killer cell-specific trypsin-like serine protease. Proc. Natl. Acad. Sci. USA 85: 1184-1188.
2. Shresta, S., et al. 1995. Natural killer and lymphokine-activated killer cells require granzyme B for the rapid induction of apoptosis in susceptible target cells. Proc. Natl. Acad. Sci. USA 92: 5679-5683.

SOURCE

pan granzyme (N-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the N-terminus of granzyme B of human 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-1969 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

pan granzyme (N-19) is recommended for detection of granzyme family members of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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); may cross-react with Mast Cell Protease 1, cathepsin G and PR3.

pan granzyme (N-19) is also recommended for detection of granzyme family members in additional species, including canine, bovine and porcine.

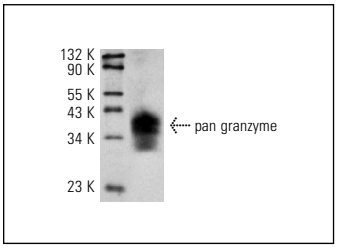
Molecular Weight of pan granzyme: 32 kDa.

Positive Controls: CTLL-2 cell lysate: sc-2242, HL-60 whole cell lysate: sc-2209 or MOLT-4 cell lysate: sc-2233.

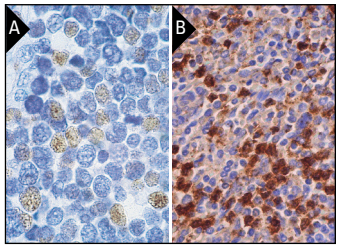
STORAGE

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

DATA



pan granzyme (N-19): sc-1969. Western blot analysis of pan granzyme B expression in CTLL-2 whole cell lysate.



pan granzyme (N-19): sc-1969. Immunoperoxidase staining of formalin-fixed, paraffin-embedded human lymphoma at high magnification showing nuclear staining of selected cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human spleen tissue showing cytoplasmic and nuclear staining of cells in red pulp (**B**).

SELECT PRODUCT CITATIONS

1. Tudzarova-Trajkovska, S., et al. 2003. Strong induction of p73 protein *in vivo* coincides with the onset of apoptosis in rat liver after treatment with the hepatocarcinogen N-nitrosomorpholine (NNM). J. Cell. Biochem. 90: 837-855.
2. Bahri, R., et al. 2006. Soluble HLA-G inhibits cell cycle progression in human alloreactive T lymphocytes. J. Immunol. 176: 1331-1339.
3. Huang, C., et al. 2006. A novel NFκB binding site controls human granzyme B gene transcription. J. Immunol. 176: 4173-4181.
4. Baba, T., et al. 2006. $CD4^+/CD8^+$ macrophages infiltrating at inflammatory sites: a population of monocytes/macrophages with a cytotoxic phenotype. Blood 107: 2004-2012.
5. Homs, S., et al. 2009. Predominant Th1 and cytotoxic phenotype in biopsies from renal transplant recipients with transplant glomerulopathy. Am. J. Transplant. 9: 1230-1236.
6. Engelmann, D., et al. 2009. Transcriptome analysis in mouse tumors induced by Ret-MEN2/FMTC mutations reveals subtype-specific role in survival and interference with immune surveillance. Endocr. Relat. Cancer 16: 211-224.

RESEARCH USE

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