SANTA CRUZ BIOTECHNOLOGY, INC.

granzyme A (GA6): sc-56116

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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.
3. Trapani, J.A., et al. 1996. A putative role in the mechanism of cytotoxic lymphocyte-mediated apoptosis. Localization of granzyme B in the nucleus. J. Biol. Chem. 271: 4127-4133.
5. Atkinson, E.A., et al. 1998. Cytotoxic T lymphocyte-assisted suicide. caspase-3 activation is primarily the result of the direct action of granzyme B. J. Biol. Chem. 273: 21261-21266.

CHROMOSOMAL LOCATION

Genetic locus: GZMB (human) mapping to 14q11.2.

SOURCE

granzyme A (GA6) is a mouse monoclonal antibody raised against granzyme A of human origin.

PRODUCT

Each vial contains 50 µg IgG_1 in 500 µl of PBS with < 0.1% sodium azide and 0.1% gelatin.

STORAGE

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

PROTOCOLS

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

APPLICATIONS

granzyme A (GA6) is recommended for detection of granzyme A of 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) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

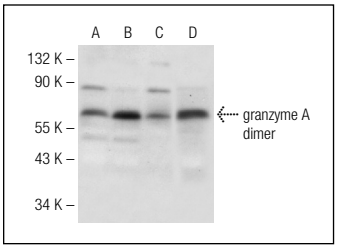
Suitable for use as control antibody for granzyme A siRNA (h): sc-37431, granzyme A shRNA Plasmid (h): sc-37431-SH and granzyme A shRNA (h) Lentiviral Particles: sc-37431-V.

Molecular Weight of granzyme A monomer: 28 kDa.

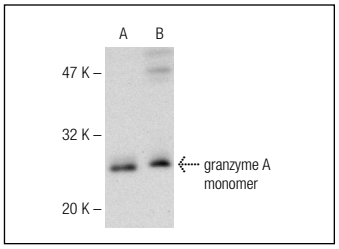
Molecular Weight of granzyme A homodimer: 43-65 kDa.

Positive Controls: HL-60 whole cell lysate: sc-2209, U-937 cell lysate: sc-2239 or K-562 whole cell lysate: sc-2203.

DATA



granzyme A (GA6): sc-56116. Western blot analysis of granzyme A expression in U-937 (**A**), AML-193 (**B**), K-562 (**C**) and HL-60 (**D**) whole cell lysates.



granzyme A (GA6): sc-56116. Western blot analysis of granzyme A expression in CCRF-HSB-2 (**A**) and NK-92 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Fogagnolo, L., et al. 2014. Cytotoxic granules in distinct subsets of cutaneous lupus erythematosus. Clin. Exp. Dermatol. 39: 835-839.

RESEARCH USE

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