

granzyme A (A-16): sc-5510

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

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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.
4. Trapani, J.A., et al. 1998. Efficient nuclear targeting of granzyme B and the nuclear consequences of apoptosis induced by granzyme B and perforin are caspase-dependent, but cell death is caspase-independent. *J. Biol. Chem.* 273: 27934-27938.
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.
6. Pham, C.T., et al. 1999. Dipeptidyl peptidase I is required for the processing and activation of granzymes A and B *in vivo*. *Proc. Natl. Acad. Sci. USA* 96: 8627-8632.
7. Shresta, S., et al. 1999. Granzyme A initiates an alternative pathway for granule-mediated apoptosis. *Immunity* 10: 595-605.

CHROMOSOMAL LOCATION

Genetic locus: GZMA (human) mapping to 5q12; Gzma (mouse) mapping to 13 D.

SOURCE

granzyme A (A-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of granzyme A 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-5510 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

granzyme A (A-16) is recommended for detection of granzyme A of mouse, rat and human 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 granzyme A siRNA (h): sc-37431, granzyme A siRNA (m): sc-37432, granzyme A shRNA Plasmid (h): sc-37431-SH, granzyme A shRNA Plasmid (m): sc-37432-SH, granzyme A shRNA (h) Lentiviral Particles: sc-37431-V and granzyme A shRNA (m) Lentiviral Particles: sc-37432-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.

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.



Try **granzyme A (3G8.5): sc-33692** or **granzyme A (GA6): sc-56116**, our highly recommended monoclonal alternatives to granzyme A (A-16).