SANTA CRUZ BIOTECHNOLOGY, INC.

granzyme A (3G8.5): sc-33692

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.

CHROMOSOMAL LOCATION

Genetic locus: Gzma (mouse) mapping to 13 D2.2.

SOURCE

granzyme A (3G8.5) is a mouse monoclonal antibody raised against full length recombinant granzyme A of mouse origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

granzyme A (3G8.5) is available conjugated to agarose (sc-33692 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-33692 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-33692 PE), fluorescein (sc-33692 FITC), Alexa Fluor® 488 (sc-33692 AF488), Alexa Fluor® 546 (sc-33692 AF546), Alexa Fluor® 594 (sc-33692 AF594) or Alexa Fluor® 647 (sc-33692 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-33692 AF680) or Alexa Fluor® 790 (sc-33692 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

In addition, granzyme A (3G8.5) is available conjugated to either PerCP (sc-33692 PerCP) or PerCP-Cy5.5 (sc-33692 PCPC5), 100 tests in 2 ml, for IF, IHC(P) and FCM.

RESEARCH USE

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

APPLICATIONS

granzyme A (3G8.5) is recommended for detection of granzyme A of mouse 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)], flow cytometry (1 µg per 1 x 10^6 cells) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

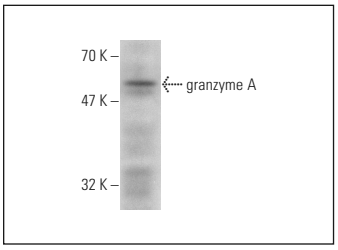
Suitable for use as control antibody for granzyme A siRNA (m): sc-37432, granzyme A shRNA Plasmid (m): sc-37432-SH and granzyme A shRNA (m) Lentiviral Particles: sc-37432-V.

Molecular Weight of granzyme A monomer: 28 kDa.

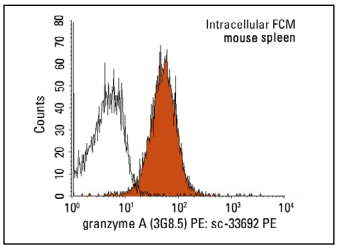
Molecular Weight of granzyme A homodimer: 43-65 kDa.

Positive Controls: WEHI-231 whole cell lysate: sc-2213.

DATA



granzyme A (3G8.5): sc-33692. Western blot analysis of granzyme A expression in WEHI-231 whole cell lysate.



granzyme A (3G8.5) PE: sc-33692 PE. Intracellular FCM analysis of fixed and permeabilized BALB/c splenocytes. Black line histogram represents the isotype control, normal mouse IgG_{2b}-PE: sc-2868.

SELECT PRODUCT CITATIONS

1. Cao, X, et al. 2007. Granzyme B and perforin are important for regulatory T cell-mediated suppression of tumor clearance. Immunity 27: 635-646.
2. Moffat, J.M., et al. 2009. Granzyme A expression reveals distinct cytolytic CTL subsets following influenza A virus infection. Eur. J. Immunol. 39: 1203-1210.
3. Lucas, M., et al. 2010. Studying NK cell/dendritic cell interactions. Methods Mol. Biol. 612: 97-126.
4. Nguyen, M.L., et al. 2016. Dynamic regulation of permissive histone modifications and GATA3 binding underpin acquisition of granzyme A expression by virus-specific $CD8^+$ T cells. Eur. J. Immunol. 46: 307-318.
5. Xu, A., et al. 2016. TGF-β-induced regulatory T cells directly suppress B cell responses through a noncytotoxic mechanism. J. Immunol. 196: 3631-3641.
6. Aragoneses-Fenoll, L., et al. 2018. T-cell-specific loss of the PI-3-kinase p110α catalytic subunit results in enhanced cytokine production and anti-tumor response. Front. Immunol. 9: 332.

STORAGE

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