SANTA CRUZ BIOTECHNOLOGY, INC.

Perforin 1 (F-1): sc-136994

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The major defense of the body against virus-infected and tumorigenic cells is cytotoxic T lymphocyte (CTL)-mediated cytotoxicity, which also plays a role in autoimmune diseases and transplant rejection. During CTL-mediated cytotoxicity, CTL granules containing perforin are exocytosed. Perforin is a poreforming protein that facilitates the entry of cytotoxic serine proteases, such as granzymes, into target cells by forming transmembrane channels in target cell membranes. Perforin is primarily expressed in cytotoxic T lymphocytes (CTL) and natural killer (NK) cells, but has also been observed in an astrocyte population of the human brain. It has been shown that abrogation of perforin function by Ca^{2+}-complexing agents leads to decreased levels of necrosis, demonstrating that both necrosis and apoptosis contribute to CTL-mediated cytotoxicity. Perforin activity has been shown to be induced by IL-2, IL-3, IL-4, IL-6 and to a lesser degree, TNF and IFN-γ.

CHROMOSOMAL LOCATION

Genetic locus: PRF1 (human) mapping to 10q22.1; Prf1 (mouse) mapping to 10 B4.

SOURCE

Perforin 1 (F-1) is a mouse monoclonal antibody raised against amino acids 241-555 mapping at the C-terminus of Perforin 1 of human 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.

Perforin 1 (F-1) is available conjugated to agarose (sc-136994 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-136994 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-136994 PE), fluorescein (sc-136994 FITC), Alexa Fluor® 488 (sc-136994 AF488), Alexa Fluor® 546 (sc-136994 AF546), Alexa Fluor® 594 (sc-136994 AF594) or Alexa Fluor® 647 (sc-136994 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-136994 AF680) or Alexa Fluor® 790 (sc-136994 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Perforin 1 (F-1) is recommended for detection of Perforin 1 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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).

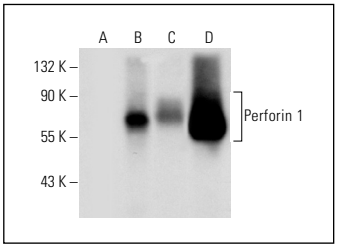
Suitable for use as control antibody for Perforin 1 siRNA (h): sc-42592, Perforin 1 siRNA (m): sc-42593, Perforin 1 siRNA (r): sc-270073, Perforin 1 shRNA Plasmid (h): sc-42592-SH, Perforin 1 shRNA Plasmid (m): sc-42593-SH, Perforin 1 shRNA Plasmid (r): sc-270073-SH, Perforin 1 shRNA (h) Lentiviral Particles: sc-42592-V, Perforin 1 shRNA (m) Lentiviral Particles: sc-42593-V and Perforin 1 shRNA (r) Lentiviral Particles: sc-270073-V.

Molecular Weight of Perforin 1: 75 kDa.

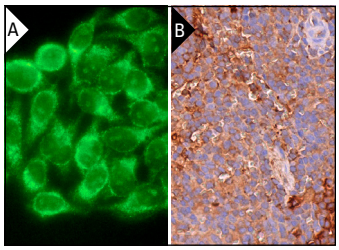
STORAGE

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

DATA



Perforin 1 (F-1): sc-136994. Western blot analysis of Perforin 1 expression in non-transfected 293T: sc-117752 (**A**), human Perforin 1 transfected 293T: sc-116672 (**B**), CTLL-2 (**C**) and NK-92 (**D**) whole cell lysates.



Perforin 1 (F-1): sc-136994. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse spleen tissue showing cytoplasmic staining of cells in white pulp and cells in red pulp (**B**).

SELECT PRODUCT CITATIONS

1. Chen, L., et al. 2019. Exosomes derived from T regulatory cells suppress $CD8^+$ cytotoxic T lymphocyte proliferation and prolong liver allograft survival. Med. Sci. Monit. 25: 4877-4884.
2. Zhang, Q., et al. 2019. Deletion of Prl7d1 causes placental defects at mid-pregnancy in mice. Mol. Reprod. Dev. 86: 696-713.
3. Yanagimichi, M., et al. 2021. Analyses of putative anti-cancer potential of three Stat3 signaling inhibitory compounds derived from *Salvia officinalis*. Biochem. Biophys. Rep. 25: 100882.
4. Traum, D., et al. 2021. Highly multiplexed 2-dimensional imaging mass cytometry analysis of HBV-infected liver. JCI Insight 6: 146883.
5. Vicioso, Y., et al. 2021. NFκB c-Rel is dispensable for the development but is required for the cytotoxic function of NK cells. Front. Immunol. 12: 652786.
6. Cochran, A.M., et al. 2021. Extracellular vesicles from the human natural killer cell line NK3.3 have broad and potent anti-tumor activity. Front. Cell Dev. Biol. 9: 698639.
7. Shi, Z., et al. 2023. Microglia drive transient insult-induced brain injury by chemotactic recruitment of $CD8^+$ T lymphocytes. Neuron 111: 696-710.e9.
8. Kaur, K., et al. 2023. Sequential therapy with supercharged NK cells with either chemotherapy drug cisplatin or anti-PD-1 antibody decreases the tumor size and significantly enhances the NK function in Hu-BLT mice. Front. Immunol. 14: 1132807.

RESEARCH USE

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