SANTA CRUZ BIOTECHNOLOGY, INC.

# Perforin 1 (A-2): sc-373943

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 pore-forming 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 (A-2) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 529-554 at the C-terminus of Perforin 1 of human origin.

## PRODUCT

Each vial contains 200 µg $IgG_1$ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-373943 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

## STORAGE

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

## APPLICATIONS

Perforin 1 (A-2) 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) 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.

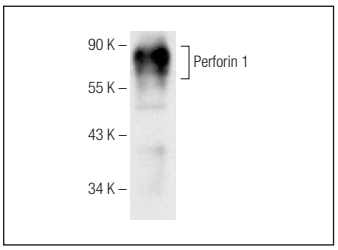
Molecular Weight of Perforin 1: 75 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, CTLL-2 cell lysate: sc-2242 or rat brain extract: sc-2392.

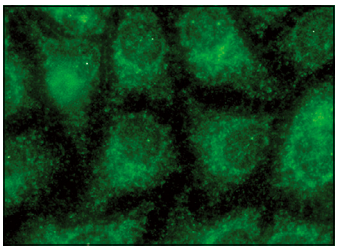
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

## DATA




Perforin 1 (A-2): sc-373943. Western blot analysis of Perforin 1 expression in CTLL-2 whole cell lysate.



Perforin 1 (A-2): sc-373943. Immunofluorescence staining of methanol-fixed HeLa cells showing cytoplasmic localization.

## SELECT PRODUCT CITATIONS


1. Naneh, O., et al. 2015. An optimized protocol for expression and purification of murine perforin in insect cells. J. Immunol. Methods 426: 19-28.
2. Jong, A.Y., et al. 2017. Large-scale isolation and cytotoxicity of extracellular vesicles derived from activated human natural killer cells. J. Extracell. Vesicles 6: 1294368.
3. Meng, M., et al. 2018. A dynamic transcriptomic atlas of cytokine-induced killer cells. J. Biol. Chem. 293: 19600-19612.
4. Xi, G., et al. 2019. GSDMD is required for effector $CD8^+$ T cell responses to lung cancer cells. Int. Immunopharmacol. 74: 105713.
5. Berköz, M., et al. 2021. Protective effect of myricetin, apigenin, and hesperidin pretreatments on cyclophosphamide-induced immunosuppression. Immunopharmacol. Immunotoxicol. 43: 353-369.
6. Huang, Y., et al. 2021. Exosomal lncRNA SNHG10 derived from colorectal cancer cells suppresses natural killer cell cytotoxicity by upregulating INHBC. Cancer Cell Int. 21: 528.
7. Lee, J., et al. 2021. Canine natural killer cell-derived exosomes exhibit antitumor activity in a mouse model of canine mammary tumor. Biomed Res. Int. 2021: 6690704.
8. Kim, I.Y., et al. 2023. Functional enhancement of exosomes derived from NK cells by IL-15 and IL-21 synergy against hepatocellular carcinoma cells: the cytotoxicity and apoptosis *in vitro* study. Heliyon 9: e16962.


## RESEARCH USE

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