SANTA CRUZ BIOTECHNOLOGY, INC.

Perforin 1 (h): 293T Lysate: sc-116672

BACKGROUND

The body's major defense 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 more recently 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.

REFERENCES

1. Liu, C.C., et al. 1990. Induction of perforin and serine esterases in a murine cytotoxic T lymphocyte clone. J. Immunol. 144: 1196-1201.
2. Podack, E.R., et al. 1991. A central role of perforin in cytolysis? Annu. Rev. Immunol. 9: 129-157.
3. Thia, K.Y., et al. 1993. Expression of human perforin in a mouse cytotoxic T lymphocyte cell line: evidence for perturbation of granule-mediated cytotoxicity. J. Leukoc. Biol. 54: 528-533.
4. Trapani, J.A. 1995. Target cell apoptosis induced by cytotoxic T cells and natural killer cells involves synergy between the pore-forming protein, perforin, the serine protease, granzyme B. Aust. N. Z. J. Med. 25: 793-799.
5. Darmon, A.J., et al. 1995. Activation of the apoptotic protease CPP32 by cytotoxic T cell-derived granzyme B. Nature 377: 446-448.
6. Renner, C., et al. 1997. Role of perforin, granzymes and the proliferative state of the target cells in apoptosis and necrosis mediated by bispecific-antibody-activated cytotoxic T cells. Cancer Immunol. Immunother. 44: 70-76.
7. Gasque, P., et al. 1998. Identification of an astrocyte cell population from human brain that expresses perforin, a cytotoxic protein implicated in immune defense. J. Exp. Med. 187: 451-460.

CHROMOSOMAL LOCATION

Genetic locus: PRF1 (human) mapping to 10q22.1.

PRODUCT

Perforin 1 (h): 293T Lysate represents a lysate of human Perforin 1 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

RESEARCH USE

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

APPLICATIONS

Perforin 1 (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive Perforin 1 antibodies. Recommended use: 10-20 µl per lane.

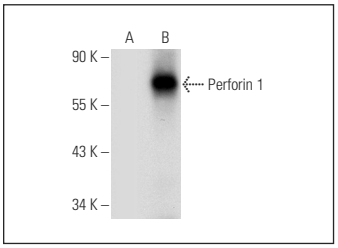
Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

Perforin 1 (F-1): sc-136994 is recommended as a positive control antibody for Western Blot analysis of enhanced human Perforin 1 expression in Perforin 1 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

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.

DATA



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

PROTOCOLS

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