

Perforin 1 (1.VB.3): sc-71877

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 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. Darmon, A.J., et al. 1995. Activation of the apoptotic protease CPP32 by cytotoxic T-cell-derived granzyme B. *Nature* 377: 446-448.
5. 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.
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.

SOURCE

Perforin 1 (1.VB.3) is a mouse monoclonal antibody raised against purified granules from the human lymphoma line YT.

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 (1.VB.3) is available conjugated to either phycoerythrin (sc-71877 PE) or fluorescein (sc-71877 FITC), 200 $\mu\text{g}/\text{ml}$, for WB (RGB), IF, IHC(P) and FCM.

APPLICATIONS

Perforin 1 (1.VB.3) is recommended for detection of Perforin 1 of human origin by 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 flow cytometry (1 μg per 1×10^6 cells); non cross-reactive with mouse Perforin 1.

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

Molecular Weight of Perforin 1: 75 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204 or NK-92 whole cell lysate: sc-364788

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850.

SELECT PRODUCT CITATIONS

1. Frisullo, G., et al. 2011. CD8⁺ T cells in facioscapulohumeral muscular dystrophy patients with inflammatory features at muscle MRI. *J. Clin. Immunol.* 31: 155-166.

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.

PROTOCOLS

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