Technical Data Sheet

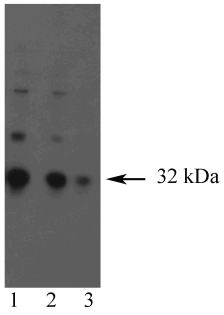
Purified Mouse Anti-Granzyme B

Product Information

Material Number:	**550558**
Size:	50 µg
Concentration:	0.5 mg/ml
Clone:	2C5/F5
Isotype:	Mouse IgG2a
Reactivity:	QC Testing: Human Tested in Development: Rat
Target MW:	32 kDa
Storage Buffer:	Aqueous buffered solution containing ≤0.09% sodium azide.

Description

The primary mechanism by which cytotoxic T cells eliminate virally infected cells is by granule exocytosis. The release of cytotoxic granule contents by cytotoxic T lymphocytes (CTL) triggers apoptotic target cell death. CTL granules contain a poreforming protein, perforin, and a group of serine proteases called granzymes. In the classic model, perforins create holes in the target cell membrane, allowing entrance of the granzymes. Granzyme A and B are the predominant granzymes activated after CTL activation, but each act via an independent apoptotic pathway; granzyme B is activated immediately, while granzyme A acts hours later. The physiological substrates for granzyme A in the apoptotic pathway have not been identified. Studies involving mice which are deficient in both granzyme A and B suggest a model whereby the granzyme B pathway may have evolved as the major apoptotic pathway with the granzyme A pathway acting as a backup. Granzyme B has been shown to induce apoptosis and to cleave a number of substrates which are similar in specificity to those of the caspase family of proteinases. Granzyme B can cleave substrates, such as DNA-PKcs, and nuclear mitotic apparatus protein (NuMA). Furthermore, Granzyme B can also cleave substrates such as Bid and DFF45 in a caspase-independent fashion. However, further research is needed to delineate the exact role of caspases in cytotoxic T lymphocyte-induced apoptosis involving Granzyme B. Granzyme B migrates at approximately 32 kDa in SDS/PAGE. Clone 2C5/F5 recognizes human and rat granzyme B.



Western blot analysis of Granzyme B.
A NK-92 cell lysate (Human natural killer cells derived from malignant non-Hodgkin's lymphoma donor; ATCC CRL-2407) was probed with the mouse anti-granzyme B antibody at concentrations of 0.125 µg/mL (lane 1), 0.0625 µg/mL (lane 2), and 0.03125 µg/mL (lane 3). Granzyme B is identified at ~32 kDa.

Preparation and Storage

Store undiluted at 4°C.

The monoclonal antibody was purified from tissue culture supernatant or ascites by affinity chromatography.

Application Notes

Application

Western blot	Routinely Tested

Recommended Assay Procedure:

Western blot: Please refer to http://www.bdbiosciences.com/pharmingen/protocols/Western_Blotting.shtml

Suggested Companion Products

Catalog Number	Name	Size	Clone
554002	HRP Goat Anti-Mouse Ig	1.0 ml	(none)

Product Notices

1. Since applications vary, each investigator should titrate the reagent to obtain optimal results.

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2. Caution: Sodium azide yields highly toxic hydrazoic acid under acidic conditions. Dilute azide compounds in running water before discarding to avoid accumulation of potentially explosive deposits in plumbing.
3. Please refer to www.bdbiosciences.com/pharmingen/protocols for technical protocols.

References

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Beresford PJ, Xia Z, Greenberg AH, Lieberman J. Granzyme A loading induces rapid cytolysis and a novel form of DNA damage independently of caspase activation. *Immunity.* 1999; 10(5):585-594. (Biology)

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Rotonda J, Garcia-Calvo M, Bull HG, et al. The three-dimensional structure of human granzyme B compared to caspase-3, key mediators of cell death with cleavage specificity for aspartic acid in P1. *Chem Biol.* 2001; 8(4):357-368. (Biology)

Sharif-Askari E, Alam A, Rheaume E, et al. Direct cleavage of the human DNA fragmentation factor-45 by granzyme B induces caspase-activated DNase release and DNA fragmentation. *EMBO J.* 2001; 20(12):3101-3113. (Biology)

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Trapani JA, Smyth MJ, Apostolidis VA, Dawson M, and Browne KA. Granule serine proteases are normal nuclear constituents of natural killer cells. *J Biol Chem.* 1994; 269:18359-18365. (Biology)