

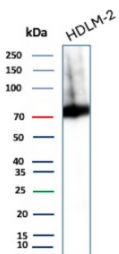
Cytotoxic Lymphocyte Perforin Antibody / PRF1 [clone PRF1/9681R] (V5975)

Catalog No.	Formulation	Size
V5975-100UG	0.2 mg/ml in 1X PBS with 0.05% BSA, 0.05% sodium azide	100 ug
V5975-20UG	0.2 mg/ml in 1X PBS with 0.05% BSA, 0.05% sodium azide	20 ug
V5975SAF-100UG	1 mg/ml in 1X PBS; BSA free, sodium azide free	100 ug

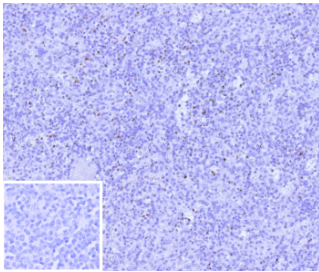
Recombinant **RABBIT MONOCLONAL**

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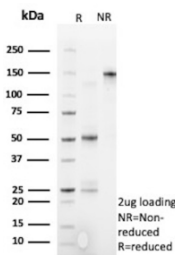
Species Reactivity	Human
Format	Purified
Host	Rabbit
Clonality	Recombinant Rabbit Monoclonal
Isotype	Rabbit IgG, kappa
Clone Name	PRF1/9681R
UniProt	P14222
Localization	Cell membrane, Cytolytic granule, Endosome lumen, Secreted
Applications	Immunohistochemistry (FFPE) : 1-2ug/ml Western Blot : 2-4ug/ml
Limitations	This Cytotoxic Lymphocyte Perforin/PRF1 antibody is available for research use only.



Western blot analysis of Cytotoxic Lymphocyte Perforin Antibody in HDLM-2 cell lysate. HDLM-2 lysate shows a prominent band at approximately 70 kDa, consistent with the predicted molecular weight of Perforin-1. The signal appears as a strong, specific band under reducing SDS-PAGE conditions, with minor higher molecular weight signal that may represent protein aggregation or incompletely reduced species. The observed band aligns with endogenous PRF1 expression, which is expected in activated or cytotoxic lymphoid cell populations.



Immunohistochemistry analysis of Cytotoxic Lymphocyte Perforin Antibody in human spleen tissue. Formalin-fixed, paraffin-embedded human spleen stained with Perforin-1 Recombinant Rabbit Monoclonal Antibody (clone PRF1/9681R) demonstrates punctate cytoplasmic HRP-DAB brown staining in scattered lymphoid cells within the white pulp, consistent with perforin localization in cytotoxic T lymphocytes and natural killer cells. The majority of surrounding lymphocytes are negative, highlighting the restricted expression pattern of PRF1 in activated cytotoxic subsets. The inset image shows the negative control in which PBS was used in place of the primary antibody, confirming absence of non-specific secondary antibody staining. Heat-induced epitope retrieval was performed by boiling tissue sections in pH 9, 10mM Tris with 1mM EDTA for 45 minutes at 95°C followed by cooling prior to immunostaining.



SDS-PAGE Analysis of Purified Cytotoxic Lymphocyte Perforin/PRF1 antibody (PRF1/9681R). Confirmation of Purity and Integrity of Antibody.

Description

Cytotoxic Lymphocyte Perforin Antibody recognizes Perforin, a calcium-dependent pore-forming protein encoded by the PRF1 gene. Perforin is a critical effector molecule of cytotoxic T lymphocytes and natural killer cells, where it is synthesized, stored in secretory granules, and released upon immune synapse formation. Following antigen recognition, Perforin is exocytosed and inserts into the membrane of target cells, forming transmembrane pores that allow granzymes to enter and initiate apoptosis. This tightly regulated mechanism is central to antiviral defense, tumor immunosurveillance, and elimination of intracellular pathogens.

Perforin belongs to the membrane attack complex/perforin (MACPF) protein family and contains a conserved MACPF domain responsible for pore formation. The protein also includes calcium-binding regions that regulate its conformational change and membrane insertion. Under resting conditions, Perforin remains sequestered within cytotoxic granules to prevent unintended tissue damage. Upon activation of cytotoxic lymphocytes, controlled secretion ensures targeted killing of infected or transformed cells while minimizing collateral injury to surrounding tissues.

The PRF1 gene is located on chromosome 10 and is predominantly expressed in activated CD8-positive T cells and natural killer cells. In lymphoid organs such as spleen, tonsil, and lymph node, Perforin-positive cells are typically scattered within germinal centers and interfollicular regions, reflecting the distribution of activated cytotoxic lymphocytes. Cytoplasmic granular staining is the expected localization pattern in immunohistochemistry due to storage within lytic granules.

Genetic mutations in PRF1 are associated with familial hemophagocytic lymphohistiocytosis and other immune dysregulation syndromes, highlighting the essential role of Perforin in maintaining immune homeostasis. Altered expression levels have also been studied in cancer immunology, transplant rejection, and autoimmune disease research. Quantifying Perforin expression can provide insight into cytotoxic immune activity within tumor microenvironments or inflammatory lesions.

This Cytotoxic Lymphocyte Perforin Antibody (clone PRF1/9681R) is a recombinant monoclonal antibody suitable for detecting PRF1 expression in research applications. A Cytotoxic Lymphocyte Perforin Antibody supports studies of cell-mediated cytotoxicity, immune activation status, and functional characterization of cytotoxic lymphocyte populations in normal and diseased tissues.

Application Notes

1. Optimal dilution of the Cytotoxic Lymphocyte Perforin/PRF1 antibody should be determined by the researcher.
2. This Cytotoxic Lymphocyte Perforin/PRF1 antibody is recombinantly produced by expression in CHO cells.

Immunogen

A recombinant fragment (around amino acids 400-555) of human Perforin-1 protein (exact sequence is proprietary) was used as the immunogen for the Cytotoxic Lymphocyte Perforin/PRF1 antibody.

Storage

Cytotoxic Lymphocyte Perforin/PRF1 antibody with sodium azide - store at 2 to 8oC; antibody without sodium azide - store at -20 to -80oC.