

PRODUCT INFORMATION

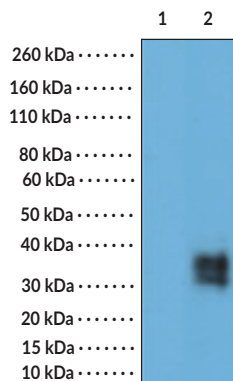
4-1BB/CD137 Rabbit Monoclonal Antibody (Clone RM471)

Item No. 42836

Overview and Properties

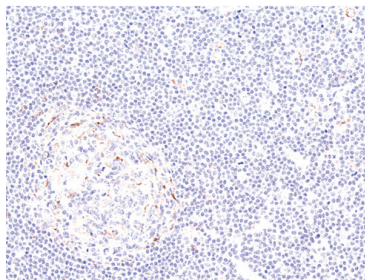
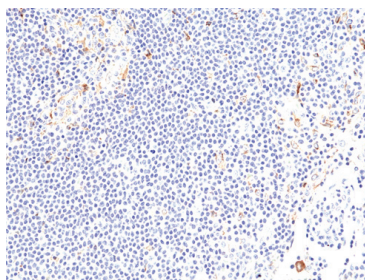
Contents:	This vial contains 100 µl of protein-A affinity purified antibody.
Synonyms:	4-1BB Ligand Receptor, CDw137, ILA, TNFRSF9, Tumor Necrosis Factor Receptor Superfamily Member 9
Immunogen:	Recombinant 4-1BB extracellular domain
Cross Reactivity:	(+) 4-1BB
Species Reactivity:	(+) Human
Form:	Liquid
Storage:	-20°C (as supplied)
Stability:	≥1 year
Storage Buffer:	PBS, pH 7.2, with 50% glycerol and 0.02% sodium azide
Clone:	RM471
Host:	Rabbit
Isotype:	IgG
Applications:	Flow cytometry (FC), immunohistochemistry (IHC), and Western blot (WB); the recommended starting dilution for FC is 1:5-1:50, 1:100-1:200 for IHC, and 1:500-1:2,000 for WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images



Lane 1: Activated human CD8⁺ T cell lysates
Lane 2: Unstimulated T cell lysates

WB of activated human CD8⁺ T cell lysates or unstimulated T cells using 4-1BB/CD137 Rabbit Monoclonal Antibody (Clone RM471) (Item No. 42836) at a 1:500 dilution.



Immunohistochemical staining of formalin-fixed and paraffin-embedded Hodgkin's lymphoma tissue sections using 4-1BB/CD137 Rabbit Monoclonal Antibody (Clone RM471) (Item No. 42836) at a 1:100 dilution.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

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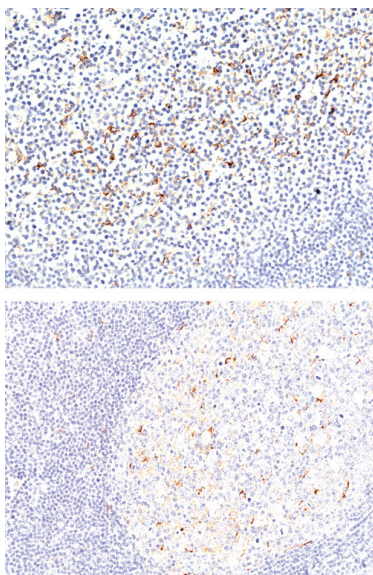
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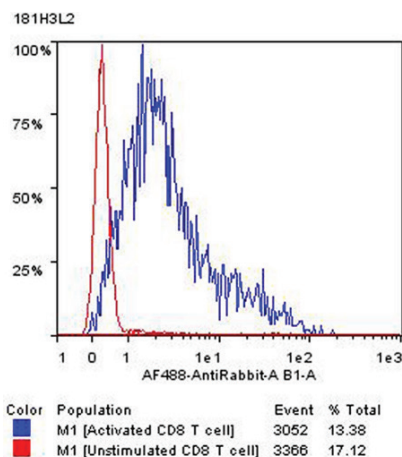
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Immunohistochemical staining of formalin-fixed and paraffin-embedded human tonsil tissue sections using 4-1BB/CD137 Rabbit Monoclonal Antibody (Clone RM471) (Item No. 42836) at a 1:100 dilution.



Flow cytometric analysis of activated human CD8⁺ T cells or unstimulated T cells using 4-1BB/CD137 Rabbit Monoclonal Antibody (Clone RM471) (Item No. 42836) at a 1:5 dilution.

Description

4-1BB, also known as CD137, is a type I transmembrane glycoprotein and member of the TNF receptor superfamily with roles in T cell-mediated immunity.¹ It is composed of an N-terminal extracellular domain comprising a signaling sequence and four cysteine-rich pseudo repeats (CRDs), a helical transmembrane domain, and a cytoplasmic signaling domain.² 4-1BB is transiently expressed on antigen-primed activated T cells, activated natural killer (NK) cells, and mature dendritic cells. Binding of homotrimeric 4-1BB ligand on antigen-primed T cells induces NF- κ B and MAPK signaling through TNF receptor-associated factors (TRAFs) and, when the T cell is co-stimulated by other factors, induces PI3K signaling.^{1,3} This bidirectional signaling event promotes clonal expansion, differentiation, and survival of T cells, as well as polarizes T helper cells.⁴ Knockout of *Tnfrsf9*, the gene encoding 4-1BB, reduces pancreatic islet accumulation of β -cell-autoreactive CD8⁺ T cells in a mouse model of type 1 diabetes mellitus. Administration of an anti-4-1BB antibody prolongs survival and reverses renal damage, production of autoantibodies, and immune complex deposition in lupus-prone NZB X NZW F₁ mice. Cayman's 4-1BB/CD137 Rabbit Monoclonal Antibody (Clone RM471) can be used for flow cytometry (FC), immunohistochemistry (IHC), and Western blot (WB) applications.

References

1. So, T. and Ishii, N. The TNF-TNFR family of co-signal molecules. *Co-signal molecules in T cell activation* 53-84 (2019).
2. Chin, S.M., Kimberlin, C.R., Roe-Zurz, Z., *et al.* Structure of the 4-1BB/4-1BBL complex and distinct binding and functional properties of utomilumab and urelumab. *Nat. Commun.* **9**(1), 4679 (2018).
3. Barsoumian, H.B., Batra, L., Shrestha, P., *et al.* A novel form of 4-1BBL prevents cancer development via nonspecific activation of CD4⁺ T and natural killer cells. *Cancer Res.* **79**(4), 783-794 (2019).
4. Wong, H.Y. and Schwarz, H. CD137 / CD137 ligand signalling regulates the immune balance: A potential target for novel immunotherapy of autoimmune diseases. *J. Autoimmun.* **112**, 102499 (2020).