

**4-1BB/CD137/TNFRSF9 Antibody**

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**For Research Use Only. Not for Use in Diagnostic Procedures.**

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H	Endogenous	32, 40	Rabbit	#Q07011	3604

**Product Usage Information****Application**

Western Blotting

**Dilution**

1:1000

**Storage**

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at -20°C. Do not aliquot the antibody.

**Specificity/Sensitivity**

4-1BB/CD137/TNFRSF9 Antibody recognizes endogenous levels of total 4-1BB/CD137/TNFRSF9 protein.

**Source / Purification**

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Gln128 of human 4-1BB/CD137/TNFRSF9 protein. Antibodies are purified by protein A and peptide affinity chromatography.

**Background**

TNFRSF9 is a member of the tumor necrosis factor receptor superfamily (1,2). It is also called 4-1BB or CD137 (1, 2). 4-1BB/CD137/TNFRSF9 is expressed in activated CD4+ and CD8+ T cells, natural killer cells and dendritic cells (2-5). The ligand 4-1BBL/CD137L/TNFRSF9 on antigen presenting cells binds to 4-1BB/CD137/TNFRSF9 and costimulates the activation of T cells (5). The binding of agonistic antibodies to 4-1BB/CD137/TNFRSF9 also leads to costimulation for T cell activation (5). Studies have shown the effectiveness of targeting 4-1BB/CD137/TNFRSF9 by its agonistic antibodies in cancer immunotherapy (6).

**Background References**

- Sun, Y. et al. (2002) *Nat Med* 8, 1405-13.
- Wilcox, R.A. et al. (2002) *J Clin Invest* 109, 651-9.
- Lin, W. et al. (2008) *Blood* 112, 699-707.
- Wilcox, R.A. et al. (2002) *J Immunol* 168, 4262-7.
- Melero, I. et al. (1997) *Nat Med* 3, 682-5.
- Yonezawa, A. et al. (2015) *Clin Cancer Res* 21, 3113-20.

**Species Reactivity**

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

**Western Blot Buffer**

**IMPORTANT:** For western blots, incubate membrane with diluted primary antibody in 5% w/v nonfat dry milk, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

**Applications Key**

**W:** Western Blotting

**Cross-Reactivity Key**

**H:** Human

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