



Recombinant Version of Classic Clone

## Cat nr AE00311

## Product Datasheet

Rabbit Recombinant Antibody, 4B4-1R to:

### CD137, 4-1BB

Tumor necrosis factor receptor superfamily member 9; TNF receptor superfamily member 9; 4-1BB ligand receptor; T-cell antigen 4-1BB homolog; T-cell antigen ILA; 4-1BB; CD137; CDw137; ILA; TNFRSF9

Cellular localization Activated T-cell membrane, monocyte membrane

Official Symbol (Gene) TNFRSF9  
GenelD 3604  
SwissProt Q07011

Confirmed Applications ICC, FC, WB, Monocyte activation, NK cell induction  
Positive controls ConA activated T cells, Tumor infiltrated CD8 T cells, NK cells, Jurkat, lymph node, thymus, tonsil  
Aeonian Rating© 85

Purification By Protein A from bioreactor concentrate

Formulation  1 mg IgG/ml in PBS with 0.02% Proclin 300

Amount  200ug  1000ug

Isotype Rabbit IgG, recombinant chimeric version of mouse IgG1 clone 4B4-1 (4B4-1-1)

Confirmed species reactivity Human  
Immunogen A fusion protein of human CD137 (NP\_001552.2) and Glutathione-S-Transferase (GST)

Epitope Unknown

Storage instructions Avoid repeated freeze/thaw cycles. For long term storage, keep small aliquots at -20C or -80C and keep one aliquot at 4C for daily experimentations. Azide will preserve antibody at 4C for 6-12 months, when kept away from direct sun light.

Expiration Integrity warranted for 24 months after purchase when handled and stored according to instructions, see below.

Warranty This product is only warranted for the specifications as described in this product sheet and only when the product is handled and stored according to instructions. User should validate this antibody in the application and tissue/cell type as required, after confirmation of integrity upon receipt is obtained by reproducing the performance as described below. Should such confirmation not be attempted, any warranty is void. In case of non-conformance, user needs to contact us immediately for replacement or refund.

Liability This product is for in vitro research use only. Any other applications, such as diagnostics or therapeutics, or in vivo experiments, and the validation of this product therein, are solely at the responsibility of the buyer/user.

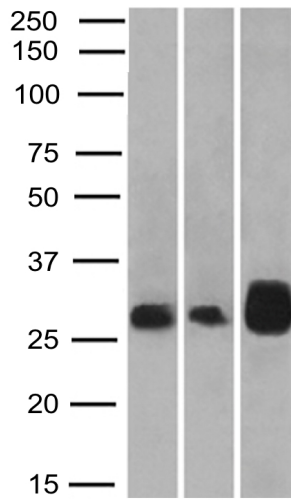
Product performance see next pages

**Product data:**

**Immunoassays**

**Western Blot (WB):**

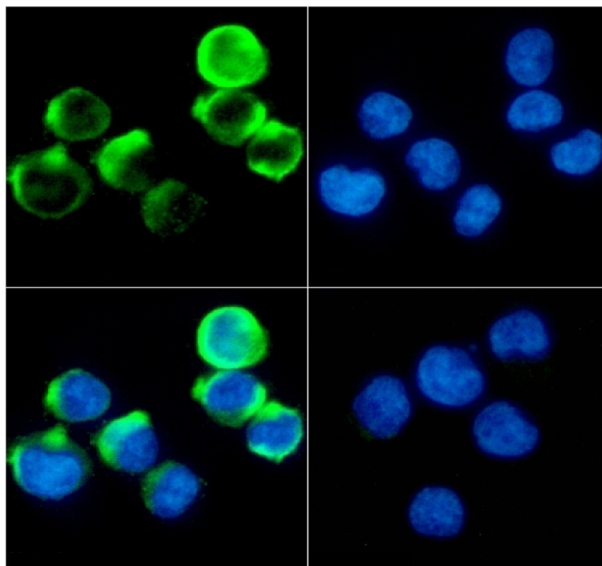
This product was successfully used to stain an approx. 27kDa band in human lymph node, thymus, and tonsil lysates. Recommended concentration: 0.3-1ug/ml



Western Blot of human thymus, lymph node and tonsil lysates (35ug) stained with CD137 Rabbit Recombinant Antibody AE00311 at 0.3ug/ml (1h at ambient temp). ECL staining by HRP.

**ImmunoCytoChemistry (ICC):**

This product was successfully used to stain the cellular surface of cell line Jurkat. Recommended concentration: 10 ug/ml



Formaldehyde-fixed cell line Jurkat stained with CD137 Rabbit Recombinant Antibody AE00311 at 10ug/ml for 1h at RT. Detection by confocal microscopy using CF488 (green) for the antibody and DAPI (blue) for nuclear staining. Bottom right shows staining with an isotype control antibody.

## Flow Cytometry (FC):

The original clone 4B4-1 was successfully used in Flow Cytometry on tumor-infiltrating CD8 T cells (CD8 TIL).

Duhen T, Duhen R, Montler R, Moses J, Moudgil T, de Miranda NF, Goodall CP, Blair TC, Fox BA, McDermott JE, Chang SC, Grunkemeier G, Leidner R, Bell RB, Weinberg AD. Co-expression of CD39 and CD103 identifies tumor-reactive CD8 T cells in human solid tumors. *Nat Commun.* 2018 Jul 13;9(1):2724. doi: 10.1038/s41467-018-05072-0. PMID: 30006565.

## Biological activity

### Binding to activated T-cells:

**The original clone 4B4-1-1 (in later publications described as 4B4-1) successfully showed good binding affinity for Con A-activated T cells. The antibody also showed suppression of lymphocyte proliferation in vitro. Binding of the antibody to the lymphocyte receptor 4-1BB (CD137) was confirmed by Flow Cytometry and ELISA.**

Kim et al. Immunoregulatory effects of a monoclonal antibody to human 4-1 bb molecule on alloantigen-mediated immune responses. *Proceedings of the Korean Society of Applied Pharmacology* (1995), pg 82-

### Monocyte activation:

**The original clone 4B4-1 was successfully used to activate human peripheral blood monocytes by binding to the CD137.**

Kienzle G, von Kempis J. CD137 (ILA/4-1BB), expressed by primary human monocytes, induces monocyte activation and apoptosis of B lymphocytes. *Int Immunol.* 2000 Jan;12(1):73-82. doi: 10.1093/intimm/12.1.73. PMID: 10607752.

### Competition for binding with another CD137 monoclonal antibody:

**The original clone 4B4-1 was successfully used to compete for binding to CD137 with CD137 mAb M121.**

Kienzle G, von Kempis J. CD137 (ILA/4-1BB), expressed by primary human monocytes, induces monocyte activation and apoptosis of B lymphocytes. *Int Immunol.* 2000 Jan;12(1):73-82. doi: 10.1093/intimm/12.1.73. PMID: 10607752.

### Induction of IFN- $\gamma$ in NK cells:

**The original clone 4B4-1 was successfully used to induce production of IFN- $\gamma$  in NK cells by binding to CD137.**

Baessler T, Charton JE, Schmiedel BJ, Grünebach F, Krusch M, Wacker A, Rammensee HG, Salih HR. CD137 ligand mediates opposite effects in human and mouse NK cells and impairs NK-cell reactivity against human acute myeloid leukemia cells. *Blood.* 2010 Apr 15;115(15):3058-69. doi: 10.1182/blood-2009-06-227934. Erratum in: *Blood.* 2010 Dec 23;116(26):6152. PMID: 20008791.