

Anti-hBCMA-CD3

Bispecific antibody against human BCMA and human CD3

Catalog code: bimab-bcmacd3-05

<https://www.invivogen.com/anti-hbcma-cd3>

For research use only, not for diagnostic or therapeutic use

Version 24C18-AK

PRODUCT INFORMATION

Content: 50 µg Anti-hBCMA-CD3 is provided azide-free and lyophilized.

Target: Human B cell maturation antigen (hBCMA) and human CD3 (hCD3)

Specificity: Human

Clonality: Monoclonal antibody

Source: CHO cells

Formulation: Anti-hBCMA-CD3 is lyophilized from a 0.2 µm filtered phosphate buffer solution (pH 7.4) containing 5% saccharose.

Purity: > 90%. Purified by HisTrap affinity chromatography.

Storage and stability

- Product is shipped at room temperature. Store lyophilized antibody at -20 °C. Lyophilized product is stable for at least 1 year.

- Reconstituted antibody is stable for 1 month when stored at 4 °C and for 1 year when aliquoted and stored at -20 °C. Avoid repeated freeze-thaw cycles.

Quality control

- Binding to hBCMA and to hCD3 has been confirmed by flow cytometry.
- Biological activity has been confirmed using cellular assays.
- The complete sequence of this antibody has been verified.
- The absence of bacterial contamination (e.g. lipoproteins and endotoxins) has been confirmed using HEK-Blue™ TLR2 and HEK-Blue™ TLR4 cells.

APPLICATION

Anti-hBCMA-CD3 bispecific antibody can be used for fine-tuning studies of B cell contact-dependent killing and T cell activation/proliferation.

RESTRICTION USE

This antibody is distributed for research purposes only. It is not intended for diagnosis or therapeutic use.

METHODS

Anti-hBCMA-CD3 resuspension (100 µg/ml)

Note: Ensure you see the lyophilized pellet before resuspension.

- Add 500 µl of sterile water to the vial and gently pipet until completely resuspended.
- Prepare aliquots and store at -20 °C until required.

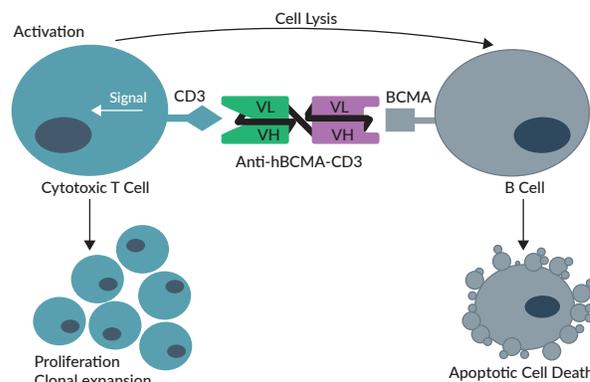


Figure 1: Anti-BCMA-CD3 binds to hCD3 on T cells and to hBCMA on mature B cells and myeloma cells leading to T cell proliferation and B cell lysis.

DESCRIPTION

Anti-hBCMA-CD3 is a bispecific antibody that recognizes two human cell markers: human B cell maturation antigen (hBCMA) and hCD3. It features pacanalotamab's single-chain variable fragments (scFv) joined by a glycine-serine linker and a hexahistidine-tag (His6). Pacanalotamab was developed for the treatment of relapsed/refractory multiple myeloma. By binding to hCD3 and hBCMA, this dual-targeting antibody engages unstimulated T cells to proliferate and subsequently trigger T cell-mediated lysis of hBCMA-positive cells¹ (Figure 1).

BACKGROUND

Human BCMA (also known as CD269 or TNFRSF17) is a type III transmembrane glycoprotein playing a central role in B cell maturation and differentiation towards plasma cells². It is expressed on plasma cells, mature B cells as well as multiple myeloma (MM) cells. By interacting with its ligands, hBCMA activates several pathways promoting B cell survival and proliferation, but also tumor cell growth and drug resistance²⁻³.

The cluster of differentiation 3 (CD3) is a marker of T cells, which recognizes and participates in the elimination of infected cells and tumor cells through the interaction between the TCR (T cell receptor) on T cells and the MHC-peptide complex on antigen-presenting cells. Upon antigen recognition, the TCR/CD3 complex on T cells triggers downstream intracellular signaling and promotes T cell activation⁴.

1. Topp et al., 2020. Anti-B-Cell Maturation Antigen BiTE Molecule AMG 420 Induces Responses in Multiple Myeloma. J Clin Oncol. 2020 Mar 10;38(8):775-783. 2. Hosny et al., 2021. Current State of the Art and Prospects of T Cell-Redirecting Bispecific Antibodies in Multiple Myeloma. J Clin Med. Oct 6;10(19):4593. 3. Abramson et al., 2020. B-Cell Maturation Antigen (BCMA) as a Target for New Drug Development in Relapsed and/or Refractory Multiple Myeloma. Int J Mol Sci. 2020;21(15):5192. 4. Smith-Garvin J.E. et al., 2009. T Cell Activation. Ann. Rev. Immunol. 27:591-619.3.

TECHNICAL SUPPORT

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Cellular assay

InvivoGen has developed a cellular assay to determine the ability of Anti-hBCMA-CD3 to activate T cells in the presence of hBCMA-positive B cells. This assay utilizes a human B cell lymphoma Raji cell line featuring stable hBCMA surface expression and InvivoGen's Jurkat-Lucia™ NFAT cells, an immortalized T lymphocyte cell line that stably expresses an NFAT-inducible Lucia luciferase reporter gene (Figure 2). For more information, please visit <http://www.invivogen.com/jurkat-lucia-nfat-cells>.

1. Dispense 20 µl of Anti-hBCMA-CD3 (0.1-100 ng/ml final concentration) diluted in IMDM (Isocove's Modified Dulbecco's Medium) containing 10% heat-inactivated fetal bovine serum per well of a 96-well plate.
2. Into each well, distribute 90 µl of Raji cell suspension (1×10^5 cells/well).
3. Incubate 30 min at 37°C.
4. Into each well, distribute 90 µl of Jurkat-Lucia™ NFAT cell suspension (3×10^5 cells/well).
5. Incubate for 24 hours at 37°C.
6. Levels of Lucia luciferase can be determined by measuring the luminescence at each time point using coelenterazine-based reagents such as QUANTI-Luc™ and QUANTI-Luc™ Gold.

Note: Jurkat T cells are $CD4^+CD8^-$. To assess B cell lysis, we recommend to use primary $CD8^+$ T cells.

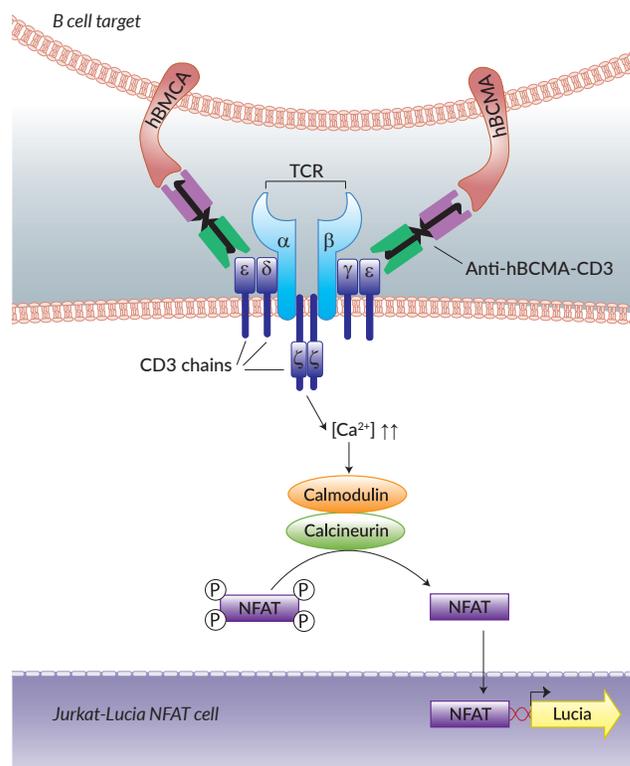


Figure 2: Jurkat-Lucia™ NFAT cell activation upon incubation with Raji hBCMA B cells and Anti-hBCMA-CD3.

RELATED PRODUCTS

Product	Cat. Code
Jurkat-Lucia™ NFAT Cells	jkti-nfat
QUANTI-Luc™	rep-qlc1
QUANTI-Luc™ Gold	rep-qlcg1

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