# Monoclonal Anti-Human 4-1BB Antibody, Mouse IgG1, Research Grade

Catalog # 41B-CH25GN

## Features and Advantages

- Native Conformation: Native sequences, tag-free and natural function.
- Reliable Activity: Biological activity calibrated against WHO/NIBSC standards.
- Stringent Quality Control: Protein content, purity, and cell-based bioactivity testing for each batch.
- Lowest Endotoxin level (<0.01 EU/ug).
- Safety Assurance: Sterile filtration through 0.2 μm membrane.
- AOF: Animal origin-free raw materials throughout the production process.

## Source

Monoclonal Anti-Human 4-1BB Antibody, Mouse IgG1, Research Grade (41B-CH25GN) is a chimeric monoclonal antibody recombinantly produced from CHO cells, which combines the variable region of a human monoclonal antibody with mouse IgG1 constant domain.

## Isotype

Mouse IgG1 | Mouse Kappa

## Conjugate

Unconjugated

## Specificity

This product is a specific antibody specifically reacts with 4-1BB.

## Endotoxin

Less than 0.002 EU per μg by the LAL method / rFC method.

## Purity

>95% as determined by SDS-PAGE.

>95% as determined by SEC-MALS.

## Formulation

Supplied as 0.2 μm filtered solution in PBS, pH7.4 with trehalose as protectant.

Contact us for customized product form or formulation.

## Shipping

**This product is supplied and shipped with dry ice, please inquire the shipping cost.**

## Storage

For long term storage, the product should be stored at liquid state at -20°C or below.

**Please avoid repeated freeze-thaw cycles.**

This product is stable after storage at:

- -20°C or below for 24 months under sterile conditions;
- 2-8°C for 12 months after thaw if within expiry date.

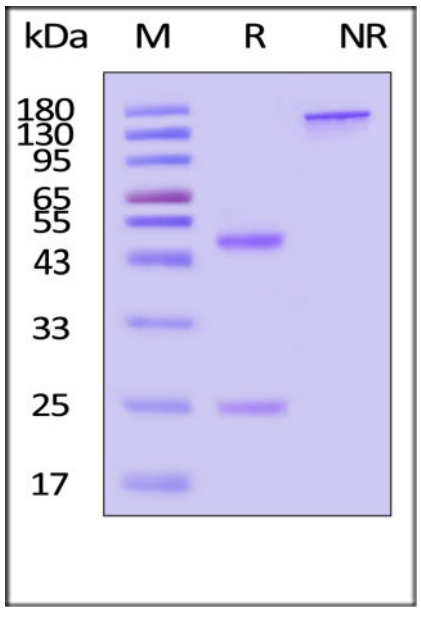
## ACRO Quality Management System

- QMS(ISO, GMP)
- Quality Advantages
- Quality Control Process

## Quality Description

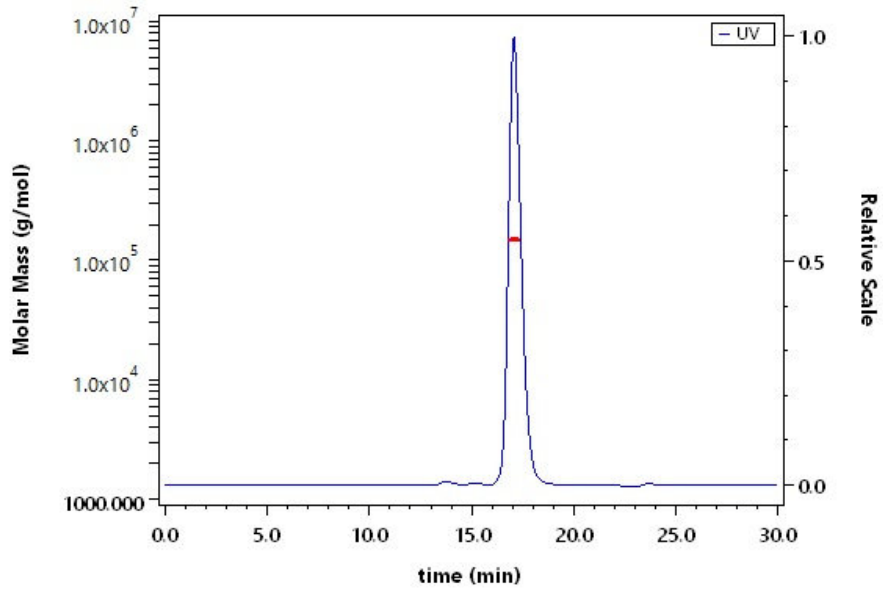
**ACRO's Research-grade** products are suitable for a wide range of cell culture applications, particularly for research use in academic institutions. These products are sterilized by filtration, followed by lyophilization where applicable. Typical specifications include endotoxin levels of <0.01 EU/μg and purities >95%. Biological activity is calibrated against WHO/NIBSC standards when available.
**ACRO's Premium-grade (Pre-GMP)** products are characterized by their high quality and enhanced safety profiles, making them ideal for early-stage discovery and manufacturing processes in cell therapy companies. A key advantage is their seamless transition to corresponding GMP-grade versions. Biological activity is calibrated against WHO/NIBSC standards when available. Typical specifications include endotoxin levels of <0.01 EU/μg and purities >95%. In addition, rigorous testing is conducted to ensure the absence of mycoplasma, HCD, and HCP, thereby guaranteeing product safety.

## SDS-PAGE



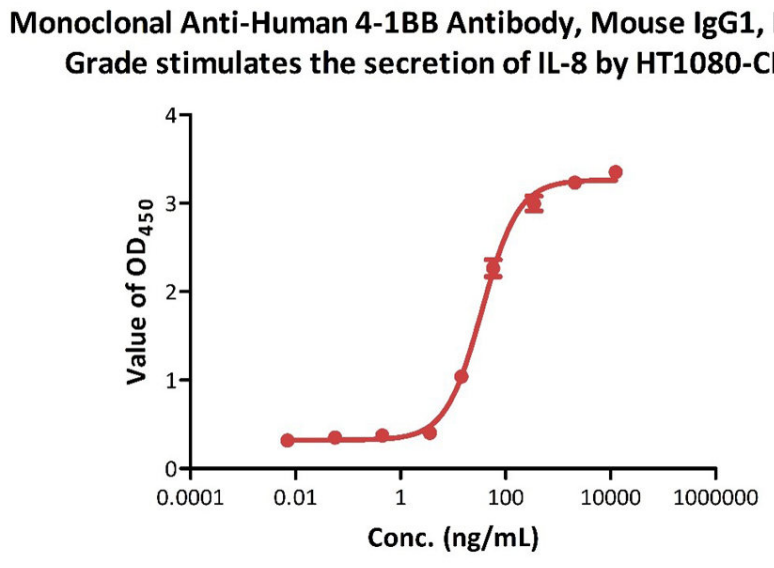

Monoclonal Anti-Human 4-1BB Antibody, Mouse IgG1, Research Grade on SDS-PAGE under reducing (R) and non-reducing (NR) conditions. The gel was stained with Coomassie Blue. The purity of the protein is greater than 95% (With Star Ribbon Pre-stained Protein Marker).

## SEC-MALS



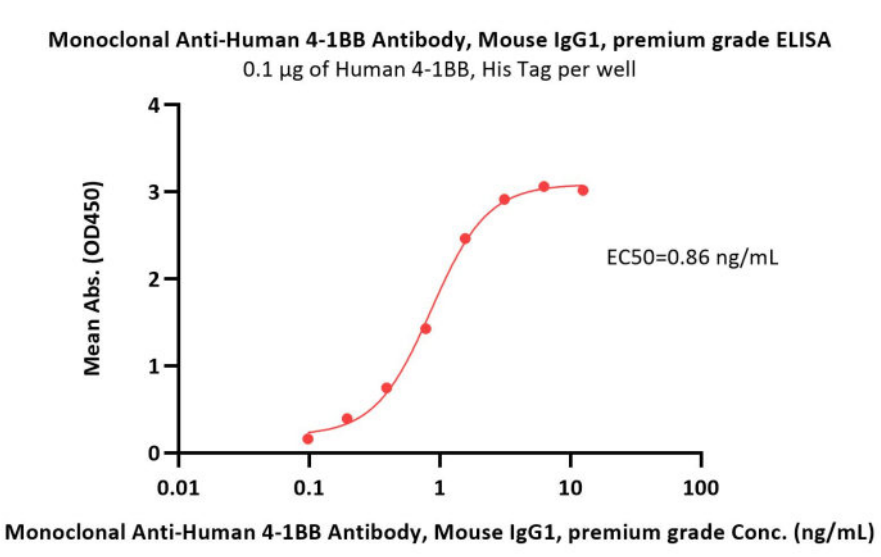

The purity of Monoclonal Anti-Human 4-1BB Antibody, Mouse IgG1, Research Grade (Cat. No. 41B-CH25GN) is more than 95% and the molecular weight of this protein is around 135-165 kDa verified by SEC-MALS.

## Bioactivity-CELL BASE




Monoclonal Anti-Human 4-1BB Antibody, Mouse IgG1, Research Grade (Cat. No. 41B-CH25GN) stimulates the secretion of IL-8 by HT1080 human CD137 cell line. The typical EC50 for this effect is 35.62 ng/mL (QC tested).

## Bioactivity-ELISA




Immobilized Human 4-1BB, His Tag (Cat. No. 41B-H52Hc) at 1 μg/mL (100 μL/well) can bind Monoclonal Anti-Human 4-1BB Antibody, Mouse IgG1, premium grade (Cat. No. 41B-CH25GN) with a linear range of 0.1-2 ng/mL (QC tested).

## Background

4-1BB, also known as CD137 and TNFRSF9, is an approximately 30 kDa transmembrane glycoprotein in the TNF receptor superfamily. 4-1BB functions in the development and activation of multiple immune cells. Mature human 4-1BB consists of a 163 amino acid (aa) extracellular domain (ECD) with four TNFR cysteine-rich repeats, a 27 aa transmembrane segment, and a 42 aa cytoplasmic domain . Within the ECD, human 4-1BB shares 60% aa sequence identity with mouse and rat 4-1BB. 4-1BB is expressed as a disulfide-linked homodimer on various populations of activated T cell including CD4, CD8, memory CD8, NKT, and regulatory T cells as well as on myeloid and mast cell progenitors, dendritic cells, mast cells, and bacterially infected osteoblasts . It binds with high affinity to the transmembrane 4-1BB Ligand/TNFSF9 which is expressed on antigen presenting cells and myeloid progenitor cells . This interaction costimulates the proliferation, activation, and/or survival of the 4-1BB expressing cell . It can also enhance the activation-induced cell death of repetitively stimulated T cells . Mice lacking 4-1BB show augmented T cell activation, perhaps due to its absence on regulatory T cells . 4-1BB can associate with OX40 on activated T cells, forming a complex that responds to either ligand and inhibits Treg and CD8 T cell proliferation . Reverse signaling through 4-1BB Ligand inhibits the development of dendritic cells, B cells, and osteoclasts but supports mature dendritic cell survival and costimulates the proliferation and activation of mast cells.
4-1BB activation enhances CD8 T cell and NK cell mediated anti-tumor immunity . It also contributes to the development of inflammation in high fat diet-induced metabolic syndrome . Soluble forms of 4-1BB and 4-1BB Ligand circulate at elevated levels in the serum of rheumatoid arthritis and hematologic cancer patients, respectively .