

# Biotinylated Human CD3E&CD3D Heterodimer Protein, Fc,His Tag&Fc,Flag Tag, ultra sensitivity (primary amine labeling) (MALS verified)

Catalog # CDD-H82W0



BIOSYSTEMS  
**Acro**

## Synonym

CD3E & CD3D, CD3 delta & CD3 epsilon

## Source

MABSol® Biotinylated Human CD3E&CD3D Heterodimer Protein, Fc,His Tag&Fc,Flag Tag, primary amine labeling (CDD-H82W0) is expressed from human HEK293 cells. It contains AA Asp 23 - Asp 126 (CD3E) & Phe 22 - Ala 105 (CD3D) (Accession # [NP\\_000724.1](#) (CD3E) & [NP\\_000723.1](#) (CD3D)).

Predicted N-terminus: Asp 23 (CD3E) & Phe 22 (CD3D)

## Molecular Characterization

CD3E (Asp 23 - Asp 126) NP_000724.1	Fc(Pro 100 - Lys 330) P01857	Poly-his
CD3D (Phe 22 - Ala 105) NP_000723.1	Fc(Pro 100 - Lys 330) P01857	Flag

The subunit CD3E carries a human IgG1 Fc fragment at the C-terminus, followed by a polyhistidine tag. The subunit CD3D carries a human IgG1 Fc fragment at the C-terminus, followed by a flag tag. The protein has a calculated MW of 39.2 kDa (CD3E) and 37.5 kDa (CD3D). The protein migrates as 45-55 kDa on a SDS-PAGE gel when calibrated against [Star Ribbon Pre-stained Protein Marker](#) under reducing (R) condition due to glycosylation.

## Labeling

*The primary amines in the side chains of lysine residues and the N-terminus of the protein are conjugated with biotins using standard chemical labeling method. A standard biotin reagent (13.5 angstroms) is used in this product.*

## Protein Ratio

Passed as determined by the HABA assay / binding ELISA.

## Endotoxin

Less than 1.0 EU per µg by the LAL method.

## Purity

>95% as determined by SDS-PAGE.

>90% as determined by SEC-MALS.

## Formulation

Lyophilized from 0.22 µm filtered solution in PBS, pH7.4 with trehalose as protectant.

Contact us for customized product form or formulation.

## Reconstitution

Please see Certificate of Analysis for specific instructions.

*For best performance, we strongly recommend you to follow the reconstitution protocol provided in the CoA.*

## Storage

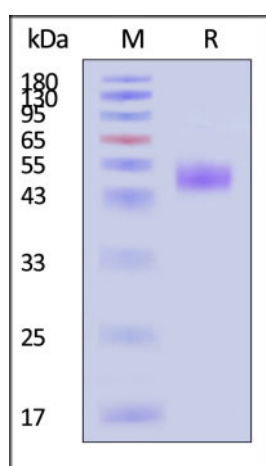
For long term storage, the product should be stored at lyophilized state at -20°C or lower.

*Please avoid repeated freeze-thaw cycles.*

This product is stable after storage at:

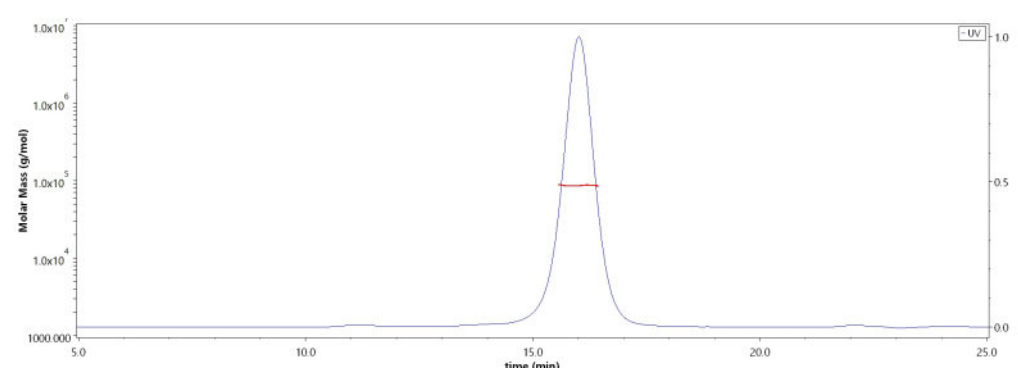
- -20°C to -70°C for 12 months in lyophilized state;
- -70°C for 3 months under sterile conditions after reconstitution.

## SDS-PAGE



Biotinylated Human CD3E&CD3D Heterodimer Protein, Fc,His Tag&Fc,Flag Tag, primary amine labeling on SDS-PAGE under reducing (R) condition. The

## SEC-MALS



The purity of Biotinylated Human CD3E&CD3D Heterodimer Protein, Fc,His Tag&Fc,Flag Tag, primary amine labeling (Cat. No. CDD-H82W0) is more

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7/4/2024

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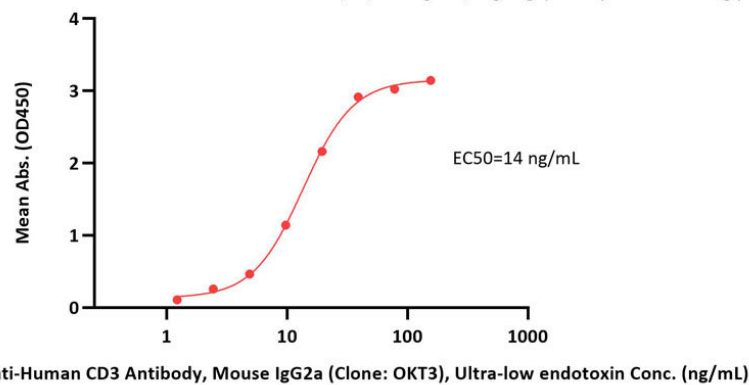
gel was stained with Coomassie Blue. The purity of the protein is greater than 95% (With [Star Ribbon Pre-stained Protein Marker](#)).

than 90% and the molecular weight of this protein is around 80-95 kDa verified by SEC-MALS.

[Report](#)

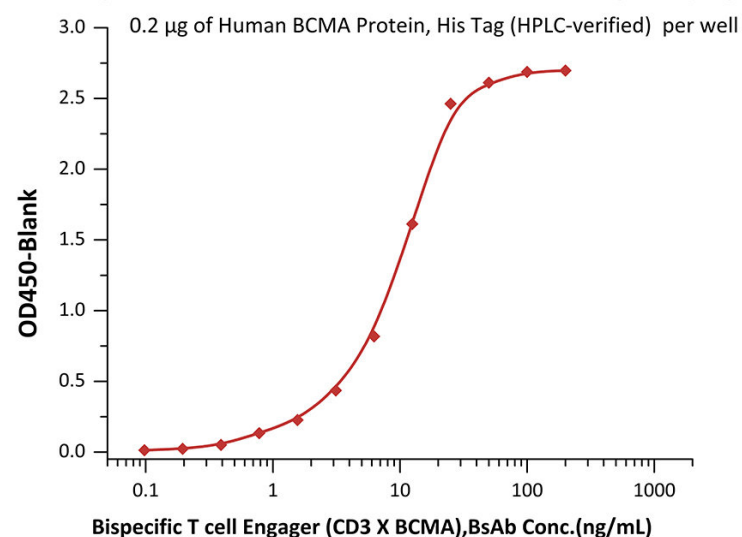
## Bioactivity-ELISA

**Biotinylated Human CD3E&CD3D Heterodimer Protein, Fc,His Tag&Fc,Flag Tag, primary amine labeling ELISA**  
0.1 µg of Biotinylated Human CD3E&CD3D Heterodimer Protein, Fc,His Tag&Fc,Flag Tag, primary amine labeling per well



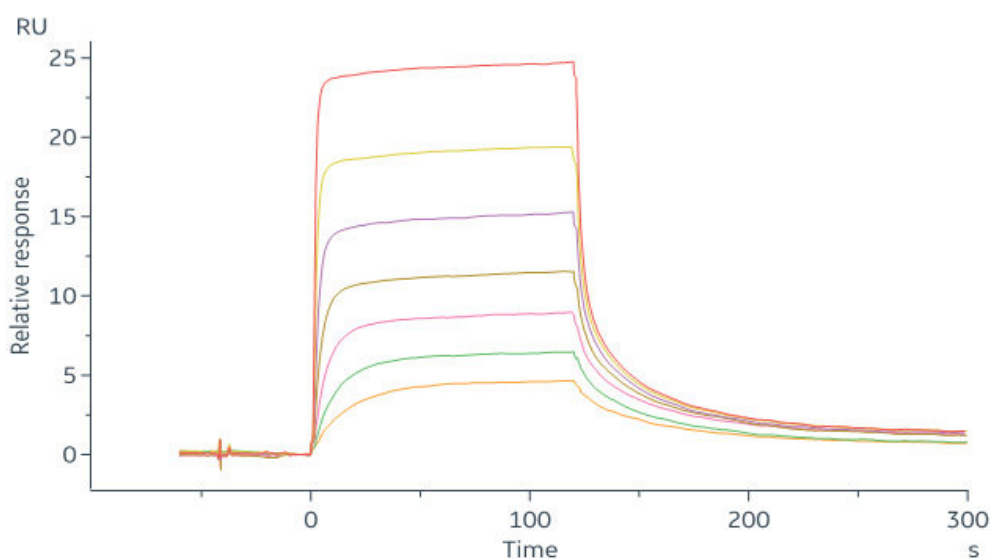
Immobilized Biotinylated Human CD3E&CD3D Heterodimer Protein, Fc,His Tag&Fc,Flag Tag, primary amine labeling (Cat. No. CDD-H82W0) at 1 µg/mL (100 µL/well) on streptavidin (Cat. No. STN-N5116) precoated (0.2 µg/well) plate, can bind Monoclonal Anti-Human CD3 Antibody, Mouse IgG2a (Clone: OKT3), premium grade (Cat. No. CDE-M120a) with a linear range of 2-20 ng/mL (QC tested).

**Biotinylated Human CD3E&CD3D Heterodimer Protein, Fc,His Tag&Fc,Flag Tag ELISA**

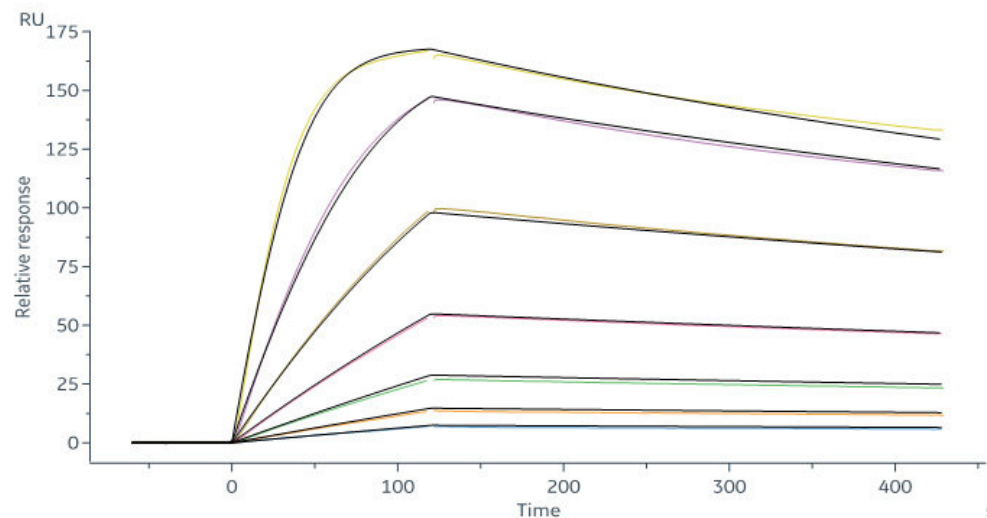


Immobilized Human BCMA Protein, His Tag (HPLC-verified) (Cat. No. BCA-H522y) at 2 µg/mL, add increasing concentrations of Bispecific T cell Engager (CD3 X BCMA) and then add Biotinylated Human CD3E&CD3D Heterodimer Protein, Fc,His Tag&Fc,Flag Tag, primary amine labeling (Cat. No. CDD-H82W0) at 1 µg/mL. Detection was performed using HRP-conjugated streptavidin with sensitivity of 0.39 ng/mL (Intact assay, Routinely tested).

## Bioactivity-SPR



Biotinylated Human CD3E&CD3D Heterodimer Protein, Fc,His Tag&Fc,Flag Tag, ultra sensitivity (primary amine labeling) (MALS verified) (Cat. No. CDD-H82W0) captured on Biotin CAP-Series S Sensor Chip can bind Monoclonal Anti-Human CD3 Antibody, Mouse IgG2a (Clone: OKT3) with an affinity constant of 17.9 nM as determined in a SPR assay (Biacore 8K) (Routinely tested).

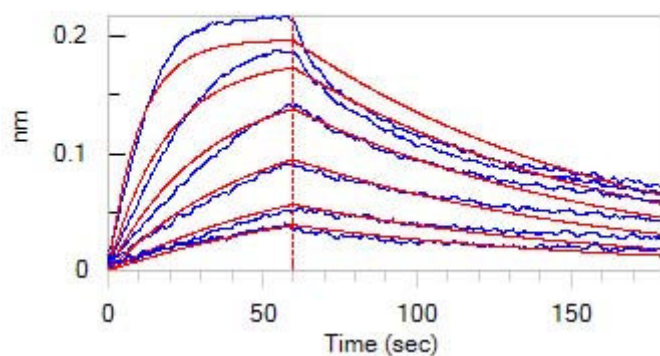


Biotinylated Human CD3E&CD3D Heterodimer Protein, Fc,His Tag&Fc,Flag Tag, ultra sensitivity (primary amine labeling) (MALS verified) (Cat. No. CDD-H82W0) captured on Biotin CAP-Series S Sensor Chip can bind Bispecific T-cell Engager (CD3 X BCMA) with an affinity constant of 0.45 nM as determined in a SPR assay (Biacore 8K) (Routinely tested).

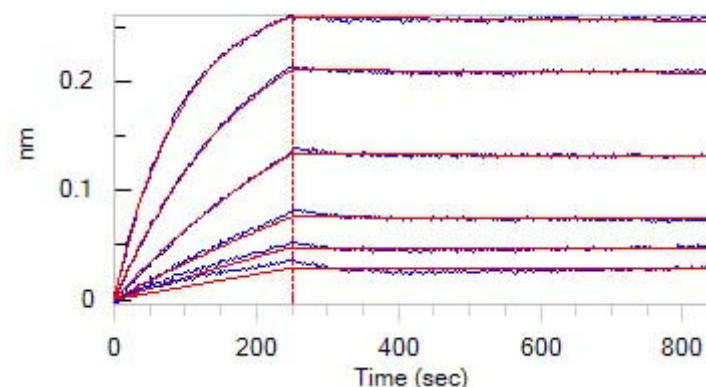
## Bioactivity-BLI

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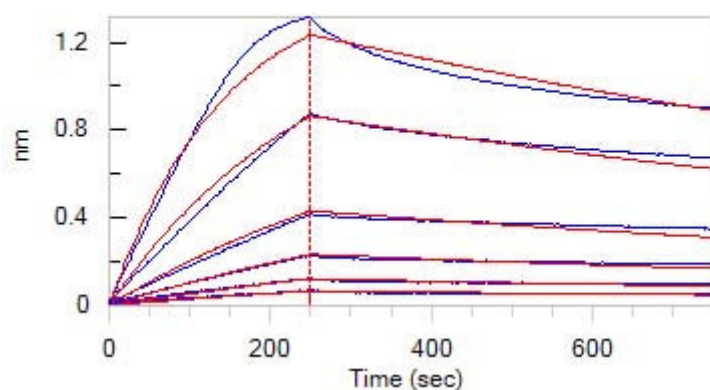




Loaded Biotinylated Human CD3E&CD3D Heterodimer Protein, Fc,His Tag&Fc,Flag Tag, primary amine labeling (Cat. No. CDD-H82W0) on SA Biosensor, can bind Monoclonal Anti-Human CD3 Antibody, Mouse IgG2a (Clone: OKT3), premium grade (Cat. No. CDE-M120a) with an affinity constant of 1.07 nM as determined in BLI assay (ForteBio Octet Red96e) (Routinely tested).



Loaded Biotinylated Human CD3E&CD3D Heterodimer Protein, Fc,His Tag&Fc,Flag Tag, primary amine labeling (Cat. No. CDD-H82W0) on SA Biosensor, can bind UCHT1 with an affinity constant of 21.8 pM as determined in BLI assay (ForteBio Octet Red96e) (Routinely tested).



Loaded Biotinylated Human CD3E&CD3D Heterodimer Protein, Fc,His Tag&Fc,Flag Tag, primary amine labeling (Cat. No. CDD-H82W0) on SA Biosensor, can bind Bispecific BCMAxCD3 T cell-engaging Antibody (Cat. No. CDA-H52Hb) with an affinity constant of 2.05 nM as determined in BLI assay (ForteBio Octet Red96e) (Routinely tested).

## Background

T-cell surface glycoprotein CD3 delta & CD3 epsilon chain, also known as CD3D & CD3E or CD3D&CD3E respectively, are single-pass type I membrane proteins. CD3D, together with CD3- epsilon(CD3E), CD3-gamma and CD3-zeta, and the T-cell receptor alpha/beta and gamma/delta heterodimers, forms the T cell receptor-CD3 complex. T cell receptor-CD3 complex plays an important role in coupling antigen recognition to several intracellular signal-transduction pathways.

## Clinical and Translational Updates

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