Bioactive, Recombinant Mouse CD28 Protein Dimer, His Tag
Product Code: CSP-25186-01
For Research Use Only (RUO)

Protein Name
CD28

Alternate Name(s)
Tp44, TP-44, T-cell-specific surface glycoprotein CD28, CD28 Antigen

Protein Construct
Mouse CD28 protein dimer contains a CD28 extracellular domain (Uniprot# P31041) fused with a proprietary cis-dimer motif followed by a His tag at the C-terminus. Expressed in HEK293T cell line.

SDS-Page Molecular Weight
46 kDa. The migration range of the CD28 protein dimer with glycosylation under non-reducing condition is 60-85 kDa on SDS PAGE.

Shipping Conditions
Frozen Dry Ice

Expression Host
HEK293T

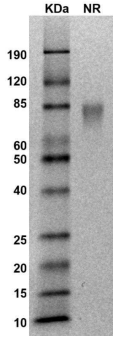
Purity
Greater than 90% dimer form as determined by SDS-PAGE under non-reducing condition

Amino Acid Range
N20-L150

Formulation
0.22µm filtered PBS, pH 7.4

Stability & Storage
-80^{0}C

SDS-PAGE



MW: Molecular Weight marker reduced condition
NR: CD28 dimer under non-reduced condition

The migration range of the CD28 protein dimer with glycosylation under non-reducing condition is 60-85 kDa on SDS PAGE.

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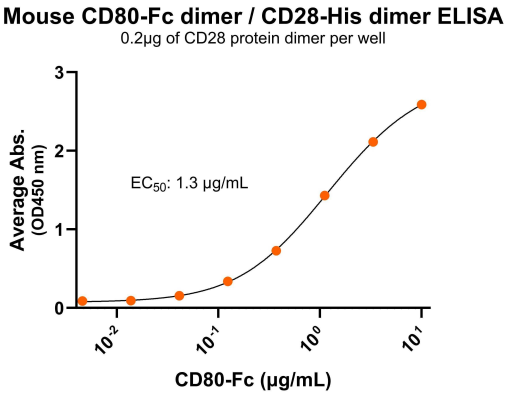
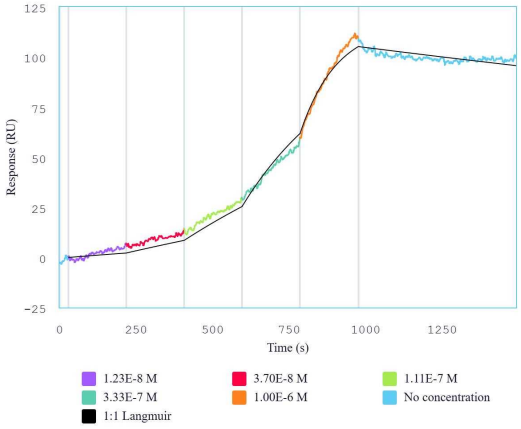
Bioactivity – Ligand Binding



Immobilized mouse CD28 dimer protein, His Tag (CSP-25186-01 at 2 μg/mL (100 μL/well) can bind mouse CD80 dimer protein, Fc Tag (Cat. No. CSP-25187-04) dimer protein, with half maximal effective concentration (EC50) range of 0.6-2.6 μg/mL (QC tested).

Bioactivity – SPR



Immobilized mouse CD28 protein dimer, His tag (CSP-25186-01) can bind mouse CD80 protein dimer, Fc Tag (Cat. No. CSP-25187-04) with a KD of 11.3-45 nM as determined by SPR.

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Background

Cluster of Differentiation 28 (CD28) is a Type I membrane protein in the immunoglobulin superfamily and a member of the B7 Family of ligands. CD28 is also known as Tp44, TP-44, T-cell-specific surface glycoprotein CD28, and CD28 Antigen. CD28 is the only B7 receptor consistently expressed on naive T cells. CD28 contains a single immunoglobulin variable-region-like (IgV-like) domain, a transmembrane domain, and a cytoplasmic domain. It exists as a homodimer on the cell surface forming a stable structure composed of two identical CD28 protein subunits. The intracellular domain contains two proline-rich motifs and a YMNM motif that are critical for effective signaling. As an immune checkpoint CD28 binds both CD80 (Cluster of differentiation 80) and CD86 (Cluster of differentiation 86) to transmit a stimulatory signal with T cells, competing with CTLA-4 (Cytotoxic T-lymphocyte associated protein 4) which transmits an inhibitory signal. CD28, as a key co-stimulatory receptor in T cell activation, is associated with several human diseases, particularly those related to immune system dysfunction, including autoimmune diseases, cancers, and allergic and inflammatory disorders. CD28 is associated with autoimmune diseases including type 1 diabetes, lupus nephritis, asthma, and Crohn's disease. The importance of CD28 signals in T-cell function makes this molecule an exciting target for drug discoveries to modulate the function of both effector T cells and Treg cells. While structurally and functionally similar to human CD28, mouse CD28 is a species-specific tool essential for preclinical studies, basic research and translational research in cancer immunotherapy.