Data Sheet (Cat.No.TMPY-04867)

TargetMol

CD3 epsilon/CD3e Protein, Human, Recombinant (His)

General Information

Synonyms:	CD3e molecule, epsilon (CD3-TCR complex);CD3 ε/CD3e;TCRE;CD3 epsilon;IMD18;CD3 ε;CD3e molecule, ε (CD3-TCR complex);T3E
Protein Construction:	A DNA sequence encoding the human CD3E (NP_000724.1) (Met1-Asp126) was expressed with a polyhistidine tag at the C-terminus. Predicted N terminal: Asp 23
Species:	Human
Expression Host:	CHO Cells
Accession:	P07766
Molecular Weight:	13.2 kDa (predicted); 23.3 kDa (reducing condition, due to glycosylation)

QC Testing

Biological Activity:	1.Immobilized SP34, Human IgG1 at 2 μg/mL (100 μL/well) can bind Recombinant Human CD3e/CD3 epsilon Protein (His Tag) (Cat#TMPY-04867), the EC50 is 4.5-13.5 ng/mL. 2. Loaded anti-CD3E antibody on ProA Biosensor, can bind Recombinant Human CD3 epsilon/CD3e Protein, His Tag (Cat#TMPY-04867) with an affinity constant of 4.33 nM as determined in BLI assay (Sartorius Octet RED384) (Routinely tested). 3.Mouse Anti-Human CD3 (SP34) captured on Protein A chip can bind Recombinant Human CD3 epsilon/CD3e Protein, His Tag (Cat#TMPY-04867) with an affinity constant of 1.419 nM as determined in an SPR assay (Biacore T200) (Routinely tested).
Purity:	> 95 % as determined by SDS-PAGE.
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

Preparation and Storage

Reconstitution:

A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

Stability & Storage:

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

Shipping:

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

Protein Background

T-cell surface glycoprotein CD3 epsilon chain, also known as CD3E, is a single-pass type I membrane protein. CD3E contains 1 Ig-like (immunoglobulin-like) domain and 1 ITAM domain. CD3E, together with CD3-gamma, CD3-delta and CD3-zeta, and the T-cell receptor alpha/beta and gamma/delta heterodimers, forms the T cell receptor-CD3 complex. The CD3 epsilon subunit of the T cell receptor (TCR) complex contains two defined signaling domains, a proline-rich sequence and an immune tyrosine activation motifs (ITAMs), and this complex undergoes a conformational change upon ligand binding that is thought to be important for the activation of T cells. In the CD3 epsilon mutant mice, all stages of T cell development and activation that are TCR-dependent were impaired, but not eliminated, including activation of mature naïve T cells with the MHCII presented superantigen, staphylococcal enterotoxin B, or with a strong TCR cross-linking antibody specific for either TCR-Cbeta or CD3 epsilon. T cell receptor-CD3 complex plays an important role in coupling antigen recognition to several intracellular signal-transduction pathways. This complex is critical for T-cell development and function, and represents one of the most complex transmembrane receptors. CD3E plays an essential role in T-cell development, and defects in CD3E gene cause severe immunodeficiency. Homozygous mutations in CD3D and CD3E genes lead to a complete block in T-cell development and thus to an early-onset severe combined immunodeficiency phenotype.Cancer ImmunotherapyImmune CheckpointImmunotherapyTargeted Therapy

Reference

Fischer A, et al. (2005) CD3 deficiencies. Curr Opin Allergy Clin Immunol. 5(6): 491-5.
Wang Y, et al. (2009) A conserved CXXC motif in CD3epsilon is critical for T cell development and TCR signaling. PLoS Biol. 7(12): e1000253.
Martnez-Martn N, et al. (2009) Cooperativity between T cell receptor complexes revealed by conformational mutants of CD3epsilon. Sci Signal. 2(83): ra43.
Deford-Watts LM, et al. (2009) The cytoplasmic tail of the T cell receptor CD3 epsilon subunit contains a phospholipid-binding motif that regulates T cell functions. J Immunol. 183(2): 1055-64.