

## CD3D Protein, Mouse, Recombinant (hFc)

### General Information

Synonyms:	CD3d molecule, $\delta$ (CD3-TCR complex); CD3d molecule, delta (CD3-TCR complex); T3d
Protein Construction:	A DNA sequence encoding the mouse CD3D (P04235) (Met1-Ala105) was expressed, fused with the Fc region of human IgG1 at the C-terminus. Predicted N terminal: Phe 22
Species:	Mouse
Expression Host:	HEK293 Cells
Accession:	P04235
Molecular Weight:	36.4 kDa (predicted); 44-48 kDa (reducing condition, due to glycosylation)

### QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 95 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/ $\mu$ g of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 $\mu$ m 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.
Shipping:	In general, Lyophilized powders are shipping with blue ice.

### Protein Background

T-cell surface glycoprotein CD3 delta chain, also known as CD3D, is a single-pass type I membrane protein. CD3D, together with CD3-gamma, CD3-epsilon and CD3-zeta, and the T-cell receptor alpha/beta and gamma/delta heterodimers, forms the T cell receptor-CD3 complex. The majority of T cell receptor (TCR) complexes in mice and humans consist of a heterodimer of polymorphic TCR alpha and beta chains along with invariant CD3 gamma, delta, epsilon, and zeta chains. 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. The T cell receptor-CD3 complex is unique in having ten cytoplasmic immunoreceptor tyrosine-based activation motifs (ITAMs). CD3D contains 1 ITAM domain and has been shown to interact with CD8A. In the mouse, knockout of CD3delta allows some degree of T lymphocyte differentiation since mature CD4 and CD8 as well as TCRgammadelta T lymphocytes are observed in the periphery. In contrast, deleterious mutation of the CD3 delta encoding gene in the human leads to a severe combined immunodeficiency characterised by the complete absence of mature T cell subpopulations including TCRalpha/beta and TCR gamma/delta. Defects in CD3D cause severe combined immunodeficiency autosomal recessive T-cell-negative/B-cell-positive/NK-cell-positive (T-/B+/NK+ SCID) which is a genetically and clinically heterogeneous group of rare congenital disorders characterized by impairment of both humoral and cell-mediated immunity, leukopenia, and low or absent antibody levels. In humans the absence of CD3 delta results in a complete arrest in thymocyte development at the stage of double negative to double positive transition and the development of gamma delta T-cell receptor-positive T cells is also impaired. Cancer Immunotherapy Immune Checkpoint Immunotherapy Targeted Therapy

### Reference

- Roifman CM. (2004) CD3 delta immunodeficiency. *Curr Opin Allergy Clin Immunol.* 4(6): 479-84.
- Pan Q, et al. (2006) Different role for mouse and human CD3delta/epsilon heterodimer in preT cell receptor (preTCR) function: human CD3delta/epsilon heterodimer restores the defective preTCR function in CD3gamma- and CD3gammadelta-deficient mice. *Mol Immunol.* 43(11): 1741-50.
- Le Deist F, et al. (2007) Expression anomalies of the CD3-TCR complex expression and immunodeficiencies. *Med Sci (Paris).* 23(2): 161-6.

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