

## CD3D-CD3E Heterodimer Protein, Mouse (HEK293)

Cat. No.:	HY-P75416
Synonyms:	CD3-DELTA Protein; IMD19 Protein; T3D Protein; CD3D; CD3E
Species:	Mouse
Source:	HEK293
Accession:	P04235 (F22-A105)&P22646 (D22-D108)
Gene ID:	12500&12501
Molecular Weight:	45-50 kDa

### PROPERTIES

Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 $\mu$ m filtered solution of PBS, pH 7.4. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
Endotoxin Level	<1 EU/ $\mu$ g, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 $\mu$ g/mL in ddH <sub>2</sub> O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

### DESCRIPTION

Background	<p>The CD3D protein is a crucial component of the TCR-CD3 complex found on the surface of T-lymphocytes, playing a pivotal role in adaptive immune responses. Upon activation of the T-cell receptor (TCR) by antigen-presenting cells (APCs), CD3D, along with CD3E, CD3G, and CD3Z, transmits TCR-mediated signals across the cell membrane. These CD3 chains contain immunoreceptor tyrosine-based activation motifs (ITAMs) in their cytoplasmic domain, which, upon phosphorylation by LCK and FYN kinases, activate downstream signaling pathways. Beyond its role in signal transduction for T-cell activation, CD3D is indispensable in thymocyte differentiation, contributing to proper intracellular TCR-CD3 complex assembly and surface expression. Dysfunction in the TCR-CD3 complex leads to impaired thymocyte differentiation. CD3D further interacts with CD4 and CD8, establishing a functional link between the TCR and coreceptors CD4 and CD8, crucial for the activation and positive selection of CD4 or CD8 T-cells. The TCR-CD3 complex consists of CD3D/CD3E and CD3G/CD3E heterodimers, forming trimers that associate with TCRalpha and TCRbeta. Additionally, the hexamer interacts with CD3Z homodimer to complete the TCR-CD3 complex, wherein TCRalpha and TCRbeta can be replaced by TCRgamma and TCRdelta. This intricate interaction network highlights the multifaceted role of CD3D in orchestrating T-cell responses.</p>
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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