

CD3D-CD3E Heterodimer Protein, Human (Biotinylated, HEK293, Fc-Avi)

Cat. No.:	HY-P77612
Synonyms:	CD3; CD3e; CD3E; CD3d; T3D; CD3D; CD3E&CD3D; CD3 delta&CD3 epsilon
Species:	Human
Source:	HEK293
Accession:	P04234 (F22-A105)&P07766 (D23-D126)
Gene ID:	915&916
Molecular Weight:	48-60 kDa

PROPERTIES

Biological Activity	Measured by its binding ability in a functional ELISA. When immobilized Biotinylated Human CD3E&CD3D, Fc Tag at 1 µg/mL (100 µl/Well) on streptavidin (5 µg/mL) precoated plate, can bind OKT3, mFc Tag and the EC ₅₀ is 14.1 ng/mL.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.22 µm filtered solution of PBS, pH 7.4. Normally 5% trehalose is added as protectant before lyophilization.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH ₂ 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

CD3D Protein, an integral part of the TCR-CD3 complex on the surface of T-lymphocytes, plays a pivotal role in the adaptive immune response. Activated by antigen-presenting cells (APCs), the T-cell receptor (TCR) transmits signals through the CD3 chains CD3D, CD3E, CD3G, and CD3Z, which harbor immunoreceptor tyrosine-based activation motifs (ITAMs) in their cytoplasmic domain. Upon TCR engagement, these ITAMs are phosphorylated by Src family protein tyrosine kinases LCK and FYN, activating downstream signaling pathways. Beyond its role in signal transduction for T-cell activation, CD3D is indispensable for thymocyte differentiation, contributing to the correct intracellular assembly and surface expression of the TCR-CD3 complex. Thymocytes lacking a functional TCR-CD3 complex face impaired differentiation. CD3D also interacts with coreceptors CD4 and CD8, establishing a functional link between the TCR and coreceptors crucial for the activation and positive selection of CD4 or CD8 T-cells. The TCR-CD3 complex comprises CD3D/CD3E and CD3G/CD3E heterodimers, forming TCRalpha/CD3E/CD3G and TCRbeta/CD3G/CD3E trimers that, in turn, interact with CD3Z homodimers to complete the hexameric TCR-CD3 complex. Alternatively, TCRalpha and TCRbeta can be substituted by TCRgamma and TCRdelta. These intricate interactions highlight CD3D's multifaceted role in orchestrating T-cell responses.

Caution: Product has not been fully validated for medical applications. For research use only.

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