

## CD3 epsilon Protein, Human (Biotinylated, HEK293, His, solution)

Cat. No.:	HY-P78874
Synonyms:	FLJ18683; T3E; TCRC; CD3E; CD3-epsilon
Species:	Human
Source:	HEK293
Accession:	P07766/NP_000724.1 (D23-D126)
Gene ID:	916
Molecular Weight:	14-18 kDa

### PROPERTIES

Biological Activity	Immobilized Anti-CD3 Antibody, hFc Tag at 1µg/ml (100µl/Well) on the plate. Dose response curve for Biotinylated Human CD3E, His Tag with the EC <sub>50</sub> of 1.9ng/ml determined by ELISA.
Appearance	Solution.
Formulation	Supplied as a 0.22 µm filtered solution of PBS, pH 7.4.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	N/A.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice.

### DESCRIPTION

#### Background

CD3 epsilon, an integral component of the TCR-CD3 complex on the surface of T-lymphocytes, plays a crucial role in the adaptive immune response. As antigen-presenting cells (APCs) activate the T-cell receptor (TCR), CD3 epsilon, along with other CD3 chains (CD3D, CD3G, and CD3Z), facilitates the transmission of TCR-mediated signals across the cell membrane. Containing immunoreceptor tyrosine-based activation motifs (ITAMs) in its cytoplasmic domain, CD3 epsilon undergoes phosphorylation by Src family protein tyrosine kinases LCK and FYN upon TCR engagement, leading to the activation of downstream signaling pathways. Beyond its role in signal transduction, CD3 epsilon is essential for proper T-cell development, initiating the assembly of the TCR-CD3 complex by forming the heterodimers CD3D/CD3E and CD3G/CD3E. Additionally, CD3 epsilon is involved in the internalization and cell surface down-regulation of TCR-CD3 complexes through endocytosis sequences present in its cytosolic region. The TCR-CD3 complex comprises CD3D/CD3E and CD3G/CD3E heterodimers, which preferentially associate with TCRalpha and TCRbeta, forming trimers that interact with CD3Z homodimers to complete the hexameric TCR-CD3 complex. Alternatively, TCRgamma and TCRdelta can replace TCRalpha and TCRbeta. CD3 epsilon's interactions with CD6, NCK1, and NUMB further highlight its pivotal role in orchestrating T-cell activation, development, and internalization processes.

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

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: [tech@MedChemExpress.com](mailto:tech@MedChemExpress.com)

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA