

## CD3 epsilon Protein, Canine (HEK293, Fc)

Cat. No.:	HY-P77320
Synonyms:	T-Cell Surface Glycoprotein CD3 Epsilon Chain; T-Cell Surface Antigen T3/Leu-4 Epsilon Chain; CD3e; CD3E; T3E
Species:	Canine
Source:	HEK293
Accession:	P27597 (M1-L122)
Gene ID:	442981
Molecular Weight:	Approximately 38.2 kDa.

### PROPERTIES

Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 µm 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/µg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/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 CD3 epsilon protein is an integral component of the TCR-CD3 complex located on the T-lymphocyte cell surface, playing a pivotal role in adaptive immune responses. When activated by antigen-presenting cells (APCs), the T-cell receptor (TCR) initiates signaling pathways transmitted across the cell membrane by the CD3 chains CD3D, CD3E, CD3G, and CD3Z, all of which contain immunoreceptor tyrosine-based activation motifs (ITAMs) in their cytoplasmic domain. Upon TCR engagement, these ITAMs undergo phosphorylation by Src family protein tyrosine kinases LCK and FYN, activating downstream signaling pathways. Beyond its role in signal transduction for T-cell activation, CD3E is indispensable for proper T-cell development and plays a crucial role in initiating TCR-CD3 complex assembly by forming the two heterodimers CD3D/CD3E and CD3G/CD3E. CD3E also participates in the internalization and cell surface down-regulation of TCR-CD3 complexes through endocytosis sequences present in its cytosolic region. The TCR-CD3 complex consists of CD3D/CD3E and CD3G/CD3E heterodimers that associate with TCRalpha and TCRbeta, forming trimers. The hexamer interacts with CD3Z homodimer to complete the TCR-CD3 complex, with the flexibility for TCRalpha and TCRbeta substitution by TCRgamma and TCRdelta. CD3E further interacts with CD6, NCK1, and NUMB, the latter being crucial for TCR-CD3 internalization and subsequent degradation. This intricate network underscores the multifunctional role of CD3E 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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