

CD3 zeta/CD247 Protein, Human (His)

Cat. No.:	HY-P76220
Synonyms:	T-cell surface glycoprotein CD3 zeta chain; CD247; CD3Z; T3Z; TCRZ
Species:	Human
Source:	E. coli
Accession:	P20963-1 (R52-R164)
Gene ID:	919
Molecular Weight:	Approximately 16 kDa

PROPERTIES

AA Sequence	R V K F S R S A D A P A Y Q Q G Q N Q L Y N E L N L G R R E E Y D V L D K R R G R D P E M G G K P Q R R K N P Q E G L Y N E L Q K D K M A E A Y S E I G M K G E R R R G K G H D G L Y Q G L S T A T K D T Y D A L H M Q A L P P R
Biological Activity	Measured by its ability to inhibit the cell growth of Jurkat cells. The ED ₅₀ for this effect is 198.5 ng/mL, corresponding to a specific activity is 5.038×10 ³ units/mg.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 µm filtered solution of PBS, pH 7.4.
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. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
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	CD3 zeta/CD247, an integral component of the TCR-CD3 complex on the T-lymphocyte cell surface, plays a crucial role in adaptive immune responses. When activated by antigen-presenting cells (APCs), the T-cell receptor (TCR)-mediated signals are transmitted across the cell membrane through CD3 chains, including CD3D, CD3E, CD3G, and CD3Z. These chains contain immunoreceptor tyrosine-based activation motifs (ITAMs) in their cytoplasmic domain, which, upon TCR engagement, become phosphorylated by Src family protein tyrosine kinases LCK and FYN. The phosphorylation of CD3Z ITAMs creates multiple docking sites for the protein kinase ZAP70, leading to ZAP70 phosphorylation and its conversion into
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a catalytically active enzyme. Beyond its role in signal transduction, CD3Z is essential for intrathymic T-cell differentiation and contributes to the activity-dependent synapse formation of retinal ganglion cells (RGCs) in the retina and dorsal lateral geniculate nucleus (dLGN). The TCR-CD3 complex, comprising heterodimers CD3D/CD3E and CD3G/CD3E, associates preferentially with TCRalpha and TCRbeta, forming trimers. The hexamer interacts with CD3Z homodimers to complete the TCR-CD3 complex, demonstrating its versatility in TCR assembly. Additionally, CD3Z interacts with various proteins, such as SLA, TRAT1, DOCK2, SHB, ZAP70, and others, contributing to its multifaceted functions in immune responses and cellular interactions.

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

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