

## Animal-Free CD40L/CD154/TRAP Protein, Human (His)

Cat. No.:	HY-P72907AF
Synonyms:	soluble CD40 Ligand; CD40 ligand; CD40-L; TRAP; CD154; sCD40L; TNFSF5
Species:	Human
Source:	E. coli
Accession:	P29965 (E108-L261)
Gene ID:	959
Molecular Weight:	Approximately 16.99 kDa

### PROPERTIES

AA Sequence	<p> MQKGDQNPQI    AAHVISEASS    KTTSVLQWAE    KGYTMSNNL  VTLENGKQLT    VKRQGLYYIY    AQVTFC SNRE    ASSQAPFIAS  LWLKSPGRFE    RILLRAANTH    SSAKPCGQQS    IHLGGVFELQ  PGASVFVNVT    DPSQVSHGTG    FTSFGLLKL </p>
Biological Activity	Measure by its ability to induce IL-8 secretion in human PBMCs. The ED <sub>50</sub> for this effect is <5 ng/mL.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a solution containing 1X PBS, pH 8.0.
Endotoxin Level	<0.1 EU per 1 µg of the protein by the 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>CD40L, also known as CD154 or TRAP protein, functions as a cytokine and serves as a ligand for CD40/TNFRSF5, orchestrating a cascade of immunological responses. It plays a pivotal role in T-cell activation, acting as a potent co-stimulator that enhances both T-cell proliferation and cytokine production, specifically IL4 and IL10. Upon cross-linking on T-cells, CD40L generates a costimulatory signal synergizing with TCR/CD3 ligation and CD28 costimulation. Additionally, CD40L induces the activation of NF-kappa-B, triggers the activation of kinases MAPK8 and PAK2 in T-cells, and facilitates tyrosine phosphorylation of CD28 isoform 3. Beyond T-cell modulation, CD40L mediates B-cell proliferation in the absence of co-stimulus and promotes IgE production in the presence of IL4, contributing to immunoglobulin class switching.</p>
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Furthermore, it serves as a ligand for integrins, specifically ITGA5:ITGB1 and ITGAV:ITGB3, and collaborates with the CD40 receptor in the activation of CD40-CD40LG signaling, exerting cell-type-dependent effects such as B-cell activation, NF-kappa-B signaling, and anti-apoptotic signaling.

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

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