

GMP CD40L/CD154/TRAP Protein, Human (HEK293)

Cat. No.:	HY-P70609G
Synonyms:	CD40 ligand; CD40-L; TRAP; CD154; TNFSF5
Species:	Human
Source:	HEK293
Accession:	P29965 (M113-L261)
Gene ID:	959
Molecular Weight:	16-18 kDa

PROPERTIES

AA Sequence	<p> M Q K G D Q N P Q I A A H V I S E A S S K T T S V L Q W A E K G Y Y T M S N N L V T L E N G K Q L T V K R Q G L Y Y I Y A Q V T F C S N R E A S S Q A P F I A S L C L K S P G R F E R I L L R A A N T H S S A K P C G Q Q S I H L G G V F E L Q P G A S V F V N V T D P S Q V S H G T G F T S F G L L K L </p>
Biological Activity	Measured by its binding ability in a functional ELISA. The EC ₅₀ for the effect is < 0.5 µg/mL.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 µm filtered solution of 20 mM PB, 200 mM NaCl, 0.1 mM EDTA, pH 7.0.
Endotoxin Level	<0.1 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	<p>CD40 Ligand (CD40L; CD154; TRAP) belongs to the tumor necrosis factor (TNF) family, is the ligand for CD40/TNFRSF5, specifically expressed on activated CD4+ T-lymphocytes^[1].</p> <p>CD40L is a type II transmembrane protein on B cells triggers important signals for B cell differentiation, maturation, and apoptosis^[4].</p> <p>CD40L acts function by cross-linking on T-cells to generate a costimulatory signal and thus enhances the production of IL4 and IL10 in conjunction with the TCR/CD3 ligation and CD28 costimulation, as well as promoting the production of</p>
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interferon- γ , and TNF- α ^{[1][4]}.

CD40L, binding with CD40 on antigen-presenting cells (APC), activates TNFR-associated factor 2- and IKK2-dependent pathways with stimulating I- κ B kinase (IKK), increasing NF- κ B DNA binding, and p65 nuclear translocation. The activation of I- κ B kinase leads to strongly c-Jun N-terminal kinase activation as well as GST-I- κ B and GST-p65 phosphorylation^[2].

CD40L involves in MAPK pathways that strongly repress Bcl-6 with inducing the phosphorylation of Erk1/2, p38 and Jnk1/2 and activating IRF4 mediated by NF- κ B^[3].

CD40L also binds to and signals through several integrins, including α v β 3 and α 5 β 1, which bind to the trimeric interface of CD40L. CD40L plays a major role in immune response and is a major target for inflammation^[5].

CD40L is widely found in different animals, while the sequence in Human is highly similar to Rhesus macaque (98.08%), but very different from Rat and Mouse with similarities of 77.31% and 77.69%, respectively. CD40L in Human is cleaved into 2 chains of membrane form (1-261 a.a.) and soluble form (113-261 a.a.), while the soluble form derives from the membrane form by proteolytic processing. Release of soluble CD40L from platelets is partially regulated by GP IIb/IIIa, actin polymerization, and a matrix metalloproteinases (MMP) inhibitor-sensitive pathway^[6].

REFERENCES

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