

CD40L/CD154/TRAP Protein, Human (HEK293, hFc-Flag)

Cat. No.:	HY-P72028
Synonyms:	CD40-L; T-cell antigen Gp39; NF-related activation protein; TRAP; Tumor necrosis factor ligand superfamily member 5; CD154; sCD40L;
Species:	Human
Source:	HEK293
Accession:	P29965 (M113-L261)
Gene ID:	959
Molecular Weight:	44-47 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	<ol style="list-style-type: none"> 1. Measured by its binding ability in a functional ELISA. Immobilized CD40L at 2 µg/mL can bind Anti- CD40L Rabbit Monoclonal Antibody, the EC₅₀ is ≤3.3 ng/mL. 2. Measured by its binding ability in a functional ELISA. Immobilized CD40 at 2 µg/mL can bind CD40L, the EC₅₀ is 3.112-3.858 ng/mL. 3. Human CD40 protein hFc tag captured on COOH chip can bind Human CD40L protein hFc and Flag tag with an affinity constant < 2.06 nM as detected by LSPR Assay. 4. Immobilized Human CD40 Ligand Trimer, His Tag at 1 µg/mL (100 µl/Well) on the plate. Dose response curve for Human CD40, hFc Tag with the EC₅₀ of 1.29 µg/mL determined by ELISA.
Appearance	Lyophilized powder
Formulation	Lyophilized from a 0.2 µm solution of PBS, 6% Trehalose, 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.
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

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].

CD40L is a type II transmembrane protein on B cells triggers important signals for B cell differentiation, maturation, and apoptosis^[4].

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 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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