

## CD40L/CD154/TRAP Protein, Rhesus macaque (His)

<b>Cat. No.:</b>	HY-P72121
<b>Synonyms:</b>	CD40LG; CD40L; TNFSF5CD40 ligand; CD40-L; Tumor necrosis factor ligand superfamily member 5; CD antigen CD154; CD40 ligand; membrane form; CD40 ligand; soluble form; sCD40L;
<b>Species:</b>	Rhesus Macaque
<b>Source:</b>	E. coli
<b>Accession:</b>	P63304 (V44-L261)
<b>Gene ID:</b>	574160
<b>Molecular Weight:</b>	Approximately 28.5 kDa

### PROPERTIES

<b>AA Sequence</b>	<p>V Y L H R R L D K I    E D E R N L H E D F    V F M K T I Q R C N    T G E R S L S L L N</p> <p>C E E I K S Q F E G    F V K D I M L N K E    E K K K E N S F E M    Q K G D Q N P Q I A</p> <p>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</p> <p>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</p> <p>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> <p>P S Q V S H G T G F    T S F G L L K L</p>
<b>Appearance</b>	Lyophilized powder.
<b>Formulation</b>	Lyophilized from a 0.2 µm solution of Tris-based buffer, 50% Glycerol.
<b>Endotoxin Level</b>	<1 EU/µg, determined by LAL method.
<b>Reconstitution</b>	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH <sub>2</sub> O.
<b>Storage &amp; Stability</b>	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.
<b>Shipping</b>	Room temperature in continental US; may vary elsewhere.

### DESCRIPTION

<b>Background</b>	<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<sup>+</sup> T-lymphocytes<sup>[1]</sup>.</p> <p>CD40L is a type II transmembrane protein on B cells triggers important signals for B cell differentiation, maturation, and apoptosis<sup>[4]</sup>.</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 interferon-γ, and TNF-α<sup>[1][4]</sup>.</p>
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CD40L, binding with CD40 on antigen-presenting cells (APC), activates TNFR-associated factor 2- and IKK2-dependent pathways with stimulating I- $\kappa$ B kinase (IKK), increasing NF- $\kappa$ B DNA binding, and p65 nuclear translocation. The activation of I- $\kappa$ B kinase leads to strongly c-Jun N-terminal kinase activation as well as GST-I- $\kappa$ B and GST-p65 phosphorylation<sup>[2]</sup>.

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- $\kappa$ B<sup>[3]</sup>.

CD40L also binds to and signals through several integrins, including  $\alpha$ v $\beta$ 3 and  $\alpha$ 5 $\beta$ 1, which bind to the trimeric interface of CD40L. CD40L plays a major role in immune response and is a major target for inflammation<sup>[5]</sup>.

CD40L is widely found in different animals, while the sequence in Rhesus macaque is highly similar to Human (98.08%), but very different from rat and mouse with similarities of 76.92% and 77.31%, respectively.

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## REFERENCES

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- [3]. Batlle A, et al. CD40 and B-cell receptor signalling induce MAPK family members that can either induce or repress Bcl-6 expression. *Mol Immunol.* 2009 May;46(8-9):1727-35.
- [4]. Mikolajczak SA, et al. The modulation of CD40 ligand signaling by transmembrane CD28 splice variant in human T cells. *J Exp Med.* 2004 Apr 5;199(7):1025-31.
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- [6]. Pietravalle F, et al. Human native soluble CD40L is a biologically active trimer, processed inside microsomes. *J Biol Chem.* 1996 Mar 15;271(11):5965-7.
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