

DESCRIPTION

Source *E. coli*-derived
Glu108-Leu261, with an N-terminal Met and 6-His tag
Accession # P29965

N-terminal Sequence Analysis Met

Predicted Molecular Mass 17.7 kDa (monomer)

SPECIFICATIONS

SDS-PAGE 18 kDa, reducing conditions

Activity Measured in a cell proliferation assay using enriched human B cells in the presence of IL-4. Spriggs, M.K. *et al.* (1992) *J. Exp. Med.* **176**:1543. The ED₅₀ for this effect is 2-12 ng/mL in the presence of 10 µg/mL of a cross-linking antibody, Mouse Anti-polyHistidine Monoclonal Antibody (Catalog # [MAB050](#)) and 20 ng/mL of recombinant human IL-4.

Endotoxin Level <0.01 EU per 1 µg of the protein by the LAL method.

Purity >97%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.

Formulation Lyophilized from a 0.2 µm filtered solution in HEPES, NaCl and EDTA with BSA as a carrier protein. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 100 µg/mL in sterile PBS containing at least 0.1% human or bovine serum albumin.

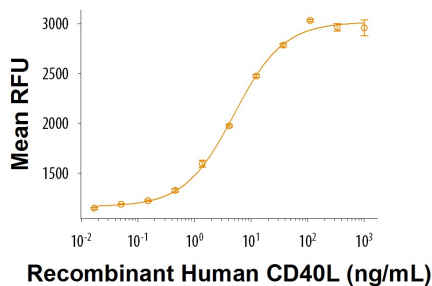
Shipping The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 12 months from date of receipt, -20 to -70 °C as supplied.
- 1 month, 2 to 8 °C under sterile conditions after reconstitution.
- 3 months, -20 to -70 °C under sterile conditions after reconstitution.

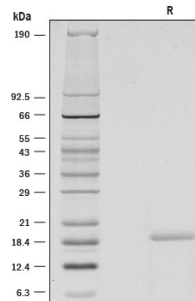
DATA

Bioactivity



Recombinant Human CD40 Ligand/TNFSF5 (Histidine-tagged) (Catalog # 2706-CL) stimulates cell proliferation using enriched B cells in the presence of IL-4. The ED₅₀ for this effect is 2-12 ng/mL in the presence of 10 µg/mL of a cross-linking antibody, Mouse Anti-polyHistidine Monoclonal Antibody (Catalog # [MAB050](#)) and 20 ng/mL of Recombinant Human IL-4 (Catalog # [204-IL](#)).

SDS-PAGE



1 µg/lane of Recombinant Human CD40 Ligand/TNFSF5 (Histidine-tagged) was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver staining, showing a single band at 19 kDa.

BACKGROUND

CD40 Ligand, also known as TNFSF, CD154, TRAP, and gp39, is a 34-39 kDa type II transmembrane glycoprotein that belongs to the TNF superfamily (1-3). Mature human CD40 Ligand consists of a 22 amino acid (aa) cytoplasmic domain, a transmembrane segment, and an 215 aa extracellular region (4, 5). The extracellular domain of human CD40 Ligand shares 74% and 76% aa sequence identity with mouse and rat CD40 Ligand, respectively. Similar to other TNF superfamily members, CD40 Ligand forms a bioactive homotrimer, both as membrane bound and soluble forms (6-9). The 18 kDa soluble form (aa 113-261) arises from proteolytic processing. Mutation and alternative splicing generate additional forms of CD40 Ligand that are often truncated or non-trimerizable (8). CD40 Ligand is expressed on platelets, as well as on activated T cells and B cells, basophils, eosinophils, fibroblasts, mast cells, monocytes, natural killer cells, vascular endothelial cells, and smooth muscle cells. CD40 Ligand binds to CD40, which is expressed on the surface of B cells, dendritic cells, macrophages, monocytes, platelets, endothelial, and epithelial cells (10). The interaction of CD40 Ligand with CD40 initiates signaling in both CD40 and CD40 Ligand expressing cells (11). CD40 ligation by CD40 Ligand promotes B cell activation and T cell-dependent humoral responses (12, 13). CD40 Ligand dysregulation on T cells and antigen presenting cells contributes to the immune deficiency associated with HIV infection and AIDS (14, 15). It is also implicated in the pathology of multiple cardiovascular diseases including atherosclerosis, atherothrombosis, and restenosis (16, 17).

References:

1. Zhang, G. (2004) *Curr. Opin. Struct. Biol.* **14**:154.
2. Hehlhans, T. and K. Pfeffer (2005) *Immunology* **115**:1.
3. Quezada, S.A. *et al.* (2004) *Annu. Rev. Immunol.* **22**:307.
4. Graf, D. *et al.* (1992) *Eur. J. Immunol.* **22**:3191.
5. Hollenbaugh, D. *et al.* (1992) *EMBO J.* **11**:4313.
6. Khandekar, S.S. *et al.* (2001) *Protein Expr. Purif.* **23**:301.
7. Pietravalle, F. *et al.* (1996) *J. Biol. Chem.* **271**:5965.
8. Garber, E. *et al.* (1999) *J. Biol. Chem.* **274**:33545.
9. Vakkalanka, R.K. *et al.* (1999) *Arthritis Rheum.* **42**:871.
10. van Kooten, C. and J. Banchereau (1997) *Curr. Opin. Immunol.* **9**:330.
11. Eissner, G. *et al.* (2004) *Cytokine Growth Factor. Rev.* **15**:353.
12. Rickert, R.C. *et al.* (2011) *Immunol. Rev.* **244**:115.
13. Elgueta, R. *et al.* (2009) *Immunol. Rev.* **229**:152.
14. Kornbluth, R.S. (2000) *J. Leukoc. Biol.* **68**:373.
15. Chougnat, C. (2003) *J. Leukoc. Biol.* **74**:702.
16. Pamukcu, B. *et al.* (2011) *Ann. Med.* **43**:331.
17. Hassan, G.S. *et al.* (2012) *Immunobiology* **217**:521.