

## Product Information

### CD40 Ligand human, recombinant expressed in *E. coli*

Catalog Number **C6362**  
Storage Temperature  $-20\text{ }^{\circ}\text{C}$

Synonyms: CD40L; CD154; TRAP; gp39

#### Product Description

Recombinant, human CD40 Ligand (CD40L) produced in *E. coli* is a non-glycosylated, polypeptide chain containing 149 amino acids and having a molecular mass of 16,308 Da. The soluble CD40 is purified by proprietary chromatographic techniques.

CD40 ligand is a membrane glycoprotein and differentiation antigen expressed on the surface of T cells. The CD40 ligand stimulates B cell proliferation and secretion of all immunoglobulin isotypes in the presence of cytokines. CD40L has been shown to induce cytokine production and tumoricidal activity in peripheral blood monocytes. The CD40 ligand also costimulates proliferation of activated T cells and this is accompanied by the production of IFN- $\gamma$ , TNF- $\alpha$ , and IL-2.

The receptor for CD40L is CD40. CD40, a type I transmembrane glycoprotein belonging to the TNF receptor family, is expressed on B lymphocytes, monocytes, dendritic cells, and thymic epithelium.<sup>1-4</sup> Following interaction with the CD40 ligand, CD40 mediates a number of major immunoregulatory functions, central to the control of thymus-dependent humoral immunity and may be critical in the development of cell-mediated immune responses. Other biological actions include B cell homotypic adhesion, proliferation, immunoglobulin isotype switch, and secretion.<sup>1-4</sup> The interaction of CD40 and CD40L also plays important roles in monocyte activation and dendritic cell maturation. Activation of CD40 inhibits the growth of certain B cell lymphomas<sup>5,6</sup> and induces the death of transformed cells of mesenchymal or epithelial origin.<sup>7-9</sup>

The product is lyophilized from a sterile solution of 10 mM sodium phosphate, pH 7.5.

Purity: >98% (HPLC and SDS-PAGE)

The ED<sub>50</sub> as determined by the dose-dependent stimulation of IL-12 and IL-8 induction by peripheral mononuclear cells was found to 5–10 ng/mL. The ED<sub>50</sub> is defined as the effective concentration of cytokine that elicits a 50% increase in cell growth in a cell based bioassay.

#### Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

#### Preparation Instructions

Reconstitute the contents of the vial using sterile water to  $\geq 100\text{ }\mu\text{g/mL}$ , which can then be further diluted to other aqueous solutions.

#### Storage/Stability

Store the product desiccated at  $-20\text{ }^{\circ}\text{C}$ . For prolonged storage, add a carrier protein (0.1% bovine serum albumin or human serum albumin) and freeze in working aliquots. Repeated freezing and thawing is not recommended. Do not store in a frost-free freezer.

#### References

1. van Kooten, C., and Banchereau, J., *Curr. Opin. Immunol.*, **9**, 330-337 (1997).
2. van Kooten, C., and Banchereau, J., *J. Leukoc. Biol.*, **67**, 2-17 (2000).
3. Foy, T.M., et al., *Annu. Rev. Immunol.*, **14**, 591-617 (1996).
4. Grewal, I.S., and Flavell, R.A., *Immunol. Today*, **17**, 410-414 (1996).
5. Funakoshi, S., et al., *Blood*, **83**, 2787-2794 (1994).
6. Baker, M.P., et al., *Blood*, **92**, 2830-2843 (1998).
7. Goldstein, M.D., and Watts, T.H., *J. Immunol.*, **157**, 2837-2843 (1996).
8. Eliopoulos, A.G., et al., *Oncogene*, **13**, 2243-2254 (1996).
9. Hess, S., and Engelmann, H., *J. Exp. Med.*, **183**, 159-167 (1996).

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