

Product Information

TARC

Human, Recombinant
Expressed in *E. coli*

Product Number **T9819**
Storage Temperature $-20\text{ }^{\circ}\text{C}$

Synonym: CCL-17

Product Description

Human recombinant TARC (thymus and activation-regulated chemokine) is expressed in *E. coli*. It is a 71 amino acid protein with a predicted molecular weight of 8 kDa.

TARC belongs to the β or CC chemokine subfamily characterized by having two adjacent cysteines in the conserved motif and by the chromosomal location of their genes.¹ Human TARC is expressed constitutively in thymus and at lower levels in lung, colon and small intestine. It is transiently expressed in peripheral blood mononuclear cells. The gene for human TARC has been mapped to chromosome 16q13.² Chemokines are involved in modulating the trafficking (chemotaxis) of leukocytes, especially systemic T cells. The Th2 subset of helper T cells, especially CD4⁺ T cells and antigen-primed helper T cells, express high levels of CCR4 receptors. TARC is a functional ligand that binds with high affinity and specificity to CCR4 receptors. Therefore TARC functions as a potent and selective chemoattractant to helper T cells and directs their migration during the early phase of the immune response.^{3,4} Real-time quantitative PCR has been used to monitor the up-regulation of TARC expression in maturing dendritic cells.⁵

Reagent

Recombinant human TARC is supplied as a lyophilized powder from a 0.2 μm filtered solution containing 30% acetonitrile, 0.1% TFA, and 50 μg bovine serum albumin per 1 μg TARC.

Precautions and Disclaimer

For laboratory research use only. Not for drug, household or other uses.

Preparation Instructions

Stock solutions should contain at least 50 μg human recombinant TARC per mL sterile phosphate buffered saline and at least 0.1% human or bovine serum albumin.

Storage/Stability

The lyophilized protein is stable for at least one year when stored at $-20\text{ }^{\circ}\text{C}$. After reconstitution, single-use aliquots may be stored at $-20\text{ }^{\circ}\text{C}$ for at least three months.

Product Profile

Recombinant human TARC is assayed for its ability to induce chemotaxis of human CEM NK^R cells ($\text{ED}_{50} = 3\text{-}9\text{ ng/mL}$)⁶ and for its ability to chemoattract mouse BaF/3 cells transfected with human CCR4 ($\text{ED}_{50} = 2\text{-}6\text{ ng/mL}$). Human TARC is also assayed for its ability to induce calcium flux in 300-10 cells stably expressing CCR4. The maximal response is induced in the presence of 500 ng TARC per mL.

Purity is >97% by SDS-PAGE visualized by silver staining.

Endotoxin level is < 0.1 ng/ μg TARC determined by the Limulus amoebocyte lysate (LAL) method.

References

1. Imai, T., et al., Molecular cloning of a novel T cell-directed CC chemokine expressed in thymus by signal sequence trap using Epstein-Barr virus vector. *J. Biol. Chem.*, **271**, 21514-21521 (1996).
2. Nomiyama, H., et al., Assignment of the human CC chemokine gene TARC (SCYA17) to chromosome 16q13. *Genomics*, **40**, 211-213 (1999).
3. Imai, T., et al., The T cell-directed CC chemokine TARC is a highly specific biological ligand for CC chemokine receptor 4. *J. Biol. Chem.*, **272**, 15036-15042 (1997).

4. Imai, T., et al., Selective recruitment of CCR4-bearing Th2 cells toward antigen-presenting cells by the CC chemokines thymus and activation-regulated chemokine and macrophage-derived chemokine. *Int. Immunol.*, **11**, 81-88 (1999).
5. Vissers, J. L., et al., Quantitative analysis of chemokine expression by dendritic cell subsets *in vitro* and *in vivo*. *J. Leukoc. Biol.*, **69**, 785-793 (2001).
6. Howell, D. N., et al., Natural killing target antigens as inducers of interferon: studies with an immunoselected, natural killing-resistant human T lymphoblastoid cell line. *J. Immunol.*, **134**, 971-976 (1985).

AGW10/01

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.