MIP-4/CCL18 Protein, Human (His)

Cat. No.:	HY-P72759
Synonyms:	C-C motif chemokine 18; AMAC-1; DC-CK1; MIP-4; CCL18; PARC; SCYA18
Species:	Human
Source:	E. coli
Accession:	P55774 (A21-A89)
Gene ID:	6362
Molecular Weight:	Approximately 10-13 kDa

PROPERTIES

AA Sequence	A Q V G T N K E L C C L V Y T S W Q I P Q K F I V D Y S E T S P Q C P K P G V I L L T K R G R Q I C A D P N K K W V Q K Y I S D L K L N A
Biological Activity	The biological activity determined by a chemotaxis bioassay human T-lymphocytes. The ED_{50} this effect is 2.763 ng/mL, corresponding to a specific activity is 3.62×10^5 U/mg.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of 20 mM Citrate, 6% Trehalose, 4% Mannitol, 0.05% Tween 80, pH 4.0 or 50 mM Tris-HCL, 300 mM NaCl, 200 mM arginine, pH 8.0.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
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	CCL18, also known as macrophage inflammatory protein-4 (MIP-4), pulmonary and activation-regulated chemokine (PARC), dendritic cell (DC)-chemokine 1 (DC-CK1) and alternative macrophage activation-associated CC chemokine-1 (AMAC-1), is a small cell factor of the CC chemokine family. CCL18 is located on chromosome 17 in the human gene and has the highest amino acid identity (65%) with CCL3, encoding an 89 amino acid long protein with a 20 amino acid long peptide signal sequence at the N' terminus that signals its secretion and is cleaved in the endoplasmic reticulum into a 69 amino acid long mature protein[1]. CCL18 is mainly produced by antigen-presenting cells of the innate immune system, including dendritic cells, monocytes and macrophages, but not in T and B cells. In macrophages, CCL18 is induced by the Th2 cytokines IL-4 and

IL-13, which program macrophages to differentiate into AAMs, which contribute to the healing phase of acute inflammatory responses and to tissue remodeling and fibrosis in chronic inflammatory diseases.CCL18 can bind to PITPNM3, GPR30, and CCR8 receptors, where CCL18 binding to CCR8 binding induces chemotaxis of Th2 cells. In addition, CCL18 can also act as a neutral CCR3 antagonist and participate in the inflammatory response. It has been shown that CCL18 and its receptor CCR8 are co-expressed in diseased human tissues during active eosinophilic inflammation. In parallel, enhanced production of CCL18 has been demonstrated in a variety of diseases, including various malignancies and inflammatory joint, lung and skin diseases[2].

REFERENCES

[1]. K Hieshima, et al. A novel human CC chemokine PARC that is most homologous to macrophage-inflammatory protein-1 alpha/LD78 alpha and chemotactic for T lymphocytes, but not for monocytes. J Immunol. 1997 Aug 1;159(3):1140-9.

[2]. Sabina A Islam, et al. Identification of human CCR8 as a CCL18 receptor. J Exp Med. 2013 Sep 23;210(10):1889-98.

[3]. Ling Lin, et al. CCL18 from tumor-associated macrophages promotes angiogenesis in breast cancer. Oncotarget. 2015 Oct 27;6(33):34758-73.

[4]. Xiaoqiang Liu, et al. CCL18 enhances migration, invasion and EMT by binding CCR8 in bladder cancer cells. Mol Med Rep. 2019 Mar;19(3):1678-1686.

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