MIP-3 beta/CCL19 Protein, Mouse (sf9, His)

Cat. No.:	HY-P7264A
Synonyms:	C-C motif chemokine 19; SCYA19
Species:	Mouse
Source:	Sf9 insect cells
Accession:	O70460 (M1-S108)
Gene ID:	24047
Molecular Weight:	Approximately 10.7 kDa

PROPERTIES

AA Sequence	M A P R V T P L L A F S L L V L W T F P A P T L G G A N D A E D C C L S V T Q R P I P G N I V K A F R Y L L N E D G C R V P A V V F T T L R G Y Q L C A P P D Q P W V D R I I R R L K K S S A K N K G N S T R R S P V S
Appearance	Lyophilized powder.
Formulation	Lyophilized a 0.2 μm filtered solution of 20 mM Tris, 300 mM NaCl, 10 % glycerol, pH 8.0. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization.
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	CCL19, also known as MIP-3 beta, is an immunostable chemokine that is located on chromosome 9 in the human genome. CCL19 is abundantly expressed in the thymus and lymph nodes, moderately expressed in the trachea and colon, and less expressed in the stomach, small intestine, lung, kidney, and spleen. CCL19 binds to and functions as a chemokine receptor, CCR7. CCR7 is the first CCR7 is the first lymphocyte-specific G protein-coupled receptor (GPCR) identified with seven transmembrane alpha helices. CCR7 is expressed on both double-negative and single-positive thymocytes, including naive T cells, central memory T cells, regulatory T cells, naive B cells, semimature/mature DCs and NK cells, as well as a few tumor cells, where it serves as a key regulator for directing steady-state lymphocytes to secondary lymphoid organs. In contrast, CCL19 is the only chemokine known to effectively stimulate β-arrestin-mediated phosphorylation and internalization of CCR7, leading to receptor desensitization and migration of antigen (Ag)-presenting DCs, thereby affecting T cell responses.

The CCL19-CCR7-based signaling pathway plays an important role in tissue immunity and inflammatory response memory. In addition, it also plays a role in vaccine-based protection against a variety of viruses, such as HIV-1 infection, hepatitis C virus (HCV), and herpes simplex virus 1 (HSV-1), etc. The interaction of CCL19 and CCR7 also contributes to the release of antiviral-associated cytokines (e.g., IFN-γ and IL-4) by immune cells, thereby promoting T cell proliferation and DC uptake of antigens[1][2].

REFERENCES

[1]. Yan Yan, et al. CCL19 and CCR7 Expression, Signaling Pathways, and Adjuvant Functions in Viral Infection and Prevention. Front Cell Dev Biol. 2019 Oct 1;7:212.

[2]. Naomi Yamashita, et al. Role of CCL21 and CCL19 in allergic inflammation in the ovalbumin-specific murine asthmatic model. J Allergy Clin Immunol. 2006 May;117(5):1040-6

[3]. Benjamin J Marsland, et al. CCL19 and CCL21 induce a potent proinflammatory differentiation program in licensed dendritic cells. Immunity. 2005 Apr;22(4):493-505.

[4]. Yan Yan, et al. CCL19 enhances CD8+ T-cell responses and accelerates HBV clearance. J Gastroenterol. 2021 Aug;56(8):769-785.

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