Lymphotactin/XCL1 Protein, Cynomolgus (sf9, His)

Cat. No.:	HY-P77072
Synonyms:	ATAC; C motif chemokine 1; Cytokine SCM-1; SCM-1-alpha; LTN; SCYC1
Species:	Cynomolgus
Source:	Sf9 insect cells
Accession:	G7NU49 (M1-G114)
Gene ID:	/
Molecular Weight:	18-23 kDa

PROPERTIES

Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm filtered solution of 20 mM Tris, 500 mM NaCl, pH 7.4, 10% Glycerol. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 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

XCL1, also known as lymphotactin, single C motif-1 (SCM-1), and activation-induced T-cell-derived and chemokine-related molecule (ATAC). XCL1 is expressed by various immune cells, including activated $CD8^+$ T cells, $CD4^+$ T cells, NK cells, NKT cells, γδ T cells, and thymic medullary epithelial cells. XCL1 elicits its chemotactic function by binding to the receptor called XCR1. XCR1 is expressed by a dendritic cell (DC) subpopulation[1].

There are two highly homologous C class chemokine genes in human, XCL1 and XCL2 (also known as SCYC1 and SCYC2, respectively). The XCL1 and XCL2 genes in human are localized closely on chromosome 1 and encode highly homologous proteins (also known as SCM-1K and SCM-1L, respectively) with only two amino acid differences from each other. Unlike CXC, CC, and CX3C class chemokines that carry two disulfide bonds with four cysteine residues at the amino termini, XCL1 has only one disulfide bond with two cysteine residues at the amino terminus. Human and mouse XCL1s share 60% amino acid identity. XCL1 transcripts are detected in spleen, thymus, intestine, and peripheral blood leukocytes. XCL1 expression is also detectable in lung, colon, prostate gland, testis, and ovary. In leukocytes, XCL1 is highly expressed in $CD8^+$ and $CD4^-CD8^-$ $TCR\alpha\beta^+$ T cells in blood and thymus, particularly when the cells are activated. $TCR\alpha\beta^+$ T cells in epidermis and intestinal epithelium also express XCL1[1].

XCL1 exerts chemotactic and immunomodulatory activity on T cells, natural killer (NK) cells, and macrophages. The interaction between XCL1 and XCR1 plays an important role in DC-mediated immune response and thymic development of

regulatory T cells. It has been also shown that XCL1 and XCR1 are constitutively expressed in the thymus and regulate the thymic establishment of self-tolerance and the generation of regulatory T cells. The elevated expression of XCL1 in various infectious and autoimmune diseases suggests the role of the XCL1-XCR1 axis in protective and pathological immune responses. In addition, XCL1 plays a role in the development of arthritis and progressive bone degradation in rheumatoid arthritis[1][2].

REFERENCES

[1]. Lei Y, et al. XCL1 and XCR1 in the immune system. Microbes Infect. 2012 Mar;14(3):262-7.

[2]. Yuan Tian, et al. Blockade of XCL1/Lymphotactin Ameliorates Severity of Periprosthetic Osteolysis Triggered by Polyethylene-Particles. Front Immunol. 2020 Aug 4;11:1720.

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