I-TAC/CXCL11 Protein, Human (HEK293)

Cat. No.:	HY-P7228
Synonyms:	rHuI-TAC/CXCL11; C-X-C motif chemokine 11; Beta-R1; H174; IP-9; SCYB11
Species:	Human
Source:	HEK293
Accession:	O14625 (F22-F94)
Gene ID:	6373
Molecular Weight:	Approximately 8.3 kDa

PROPERTIES

AA Sequence	F P M F K R G R C L C I G P G V K A V K V A D I E K A S I M Y P S N N C D K I E V I I T L K E N K G Q R C L N P K S K Q A R L I I K K V E R K N F
Biological Activity	1.The ED_{50} is <0.5 μg/mL as measured by CHO-K1/Gα15/hCXCR3 cells (human Gα15 and human CXCR3 stably expressed in CHO-K1 cells). 2.The biological activity determined by a chemotaxis bioassay using activated human T-lymphocytes. The ED_{50} for this effect is ≤2.379 ng/mL in the presence of 1ng/mL human IL-2, corresponding to a specific activity is ≥4.203×10^5 U/mg.
Appearance	Lyophilized powder.
Formulation	Lyophilized after extensive dialysis against PBS.
Endotoxin Level	<0.2 EU/μg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
Storage & Stability	Stored at -20°C for 2 years from date of receipt. 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	CXCL11 is mainly expressed in the lung, pancreas, thymus, peripheral blood leukocytes, spleen, and liver and is expressed at lesser levels in the intestine, placenta, and prostate. CXCL11 is located on human chromosome 4 and is mainly secreted by cancer cells, leukocytes, monocytes, dendritic cells, endothelial cells, and fibroblasts. CXCL11 attracts activated lymphocytes and NK cells to inflamed tissue and to tumors and inhibits the generation of novel blood vessels essential for tumor growth and tissue repair[1][2].

CXCL11 which can bind to two different chemokine receptors, CXCR3 and CXCR7. CXCL11 is characterized by the presence of 1 amino acid in between the 2 NH2-terminal cysteines. CXCL11 is usually expressed at low levels in homeostatic conditions, but is upregulated during cancer or infectious disease processes. CXCL11 is mainly induced by IFN-γ and IFN-β and is weakly induced by IFN-α. CXCL11 has potent chemoattractant activity for IL-2 activated T cells and transfected cell lines expressing CXCR3, but not freshly isolated T cells, neutrophils or monocytes. Simultaneous stimulation of fibroblasts or endothelial cells with IFN-γ and interleukin-1β or the TLR3 ligand double-stranded RNA resulted in a synergistic increase of CXCL11 production. In leukocytes, bacterial LPS and PGN even inhibited interferon-induced CXCL11 production. CXCL11 attracts activated T-helper 1 (Th1) lymphocytes and natural killer (NK) cells. Furthermore, CXCL11 can bind to CXCR7, which is associated with invasiveness and reduces apoptosis of tumor cells[1][2].

The diverse functions of CXCL11 include inhibiting angiogenesis, affecting the proliferation of different cell types, playing a role in fibroblast directed carcinoma invasion, increasing adhesion properties, suppressing M2 macrophage polarization, and facilitating the migration of certain immune cells[1][2].

REFERENCES

[1]. Proost P, et al. Proteolytic processing of CXCL11 by CD13/aminopeptidase N impairs CXCR3 and CXCR7 binding and signaling and reduces lymphocyte and endothelial cell migration. Blood. 2007 Jul 1;110(1):37-44.

[2]. Qun Gao, et al. CXCL11 Signaling in the Tumor Microenvironment. Adv Exp Med Biol. 2021;1302:41-50.

[3]. Tat-San Lau, et al. Cancer cell-derived lymphotoxin mediates reciprocal tumour-stromal interactions in human ovarian cancer by inducing CXCL11 in fibroblasts. J Pathol. 2014 Jan;232(1):43-56.

[4]. Proost P, et al. Proteolytic processing of CXCL11 by CD13/aminopeptidase N impairs CXCR3 and CXCR7 binding and signaling and reduces lymphocyte and endothelial cell migration. Blood. 2007 Jul 1;110(1):37-44.

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