NAP-2/CXCL7 Protein, Rat (CHO)

Cat. No.:	HY-P7301
Synonyms:	rRtThymusChemokine-1/CXCL7; Ppbp; Rtck1
Species:	Rat
Source:	CHO
Accession:	Q99ME0 (I46-I107)
Gene ID:	246358
Molecular Weight:	Approximately 9.8 kDa

PROPERTIES

AA Sequence	I E L R C R C T N T L S G I P L N S I S R V N V F R P G A H C D N V E V I A T L K N G K E V C L D P T A P M I K K I V K K I
Biological Activity	The EC_{50} is <300 ng/mL as measured by CHO-K1/Gα15/rCXCR2 cells (human Gα15 and rat CXCR2 stably expressed in CHO-K1 cells).
Appearance	Lyophilized powder.
Formulation	Lyophilized after extensive dialysis against PBS.
Endotoxin Level	<0.2 EU/μg, determined by LAL method.
Reconsititution	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. 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	CXCL7 is an important chemoattractant cytokine, which signals through binding to its receptor CXCR2. Many cells, including leucocytes and stromal cells, express CXCL7. CXCL7 is a potent chemoattractant and activator of neutrophil function[1][2]. CXCL7, a member of the CXC chemokine subfamily, is translated as a proprotein and cleaved into several smaller forms, each with particular functions. In humans, the CXCL7 gene is translated as a 14 kDa proprotein, designated leucocytederived growth factor (LDGF), which is cleaved into several smaller forms, platelet basic protein (PBP), connective tissue activating protein III (CTAP-III) and β-thrombogulin (β-TG), and NAP-2. The longest form, PBP or LDGF, is expressed in platelets and megakaryocytes and is reported to be a fibroblast mitogen. CTAP-III is a 85 amino acid protein and can be converted to 70

amino acid NAP-2 by enzymatic removal of 15 residues. CTAP-III is suggested to support megakaryocyte maturation and platelet production and is involved in resistance to mycobacteria by augmenting reactive oxygen production. NAP-2, the smallest protein in this series, is a neutrophil-activating mediator, stimulating functions such as lysosomal enzyme degranulation, but is reported to inhibit megakaryocytopoiesis[2].

CXCL7 has been demonstrated to participate in a variety of cellular processes, such as DNA synthesis, glycolysis, mitosis, intracellular cAMP accumulation, prostaglandin E2 secretion, as well as the synthesis of hyaluronic acid and plasminogen activator. Moreover, it is also an antimicrobial protein with bactericidal and antifungal activity. Recently, CXCL7 has been found to be deregulated in human cancers, and plays a role in tumor growth. For instance, CXCL7 is found to promote the growth of clear cell renal cell carcinoma. The CXCL7/CXCR2 signaling plays a promoting role in several common malignancies, including lung, renal, colon, and breast cancer[1].

REFERENCES

[1]. Qian Guo, et al. CXCL7 promotes proliferation and invasion of cholangiocarcinoma cells. Oncol Rep. 2017 Feb;37(2):1114-1122.

[2]. Yu-Shan Wang, et al. Canine CXCL7 and its functional expression in dendritic cells undergoing maturation. Vet Immunol Immunopathol. 2010 May 15;135(1-2):128-136.

[3]. Castor CW, et al. Structural and biological characteristics of connective tissue activating peptide (CTAP-III), a major human platelet-derived growth factor. Proc Natl Acad Sci U S A. 1983 Feb;80(3):765-9.

[4]. Schenk BI, et al. Platelet-derived chemokines CXC chemokine ligand (CXCL)7, connective tissue-activating peptide III, and CXCL4 differentially affect and cross-regulate neutrophil adhesion and transendothelial migration. J Immunol. 2002 Sep 1;169(5):2602-10.

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