

## NAP-2/CXCL7 Protein, Rat (P.pastoris, His)

Cat. No.:	HY-P75700
Synonyms:	C-X-C motif chemokine 7; PBP; LDGF; MDGF; CTAP-III; PPBP; NAP-2; CXCL7
Species:	Rat
Source:	P. pastoris
Accession:	Q99ME0 (K38-Y111)
Gene ID:	246358
Molecular Weight:	Approximately 9.6 kDa

### PROPERTIES

Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 $\mu$ m filtered solution of PBS, pH 7.4. Normally 5% - 8% trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
Endotoxin Level	<1 EU/ $\mu$ g, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 $\mu$ g/mL in ddH <sub>2</sub> O.
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<sup>[1][2]</sup>. 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  $\beta$ -thromboglobulin ( $\beta$ -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<sup>[2]</sup>.

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

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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<sup>[1]</sup>.

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## REFERENCES

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[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.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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