

RANTES/CCL5 Protein, Rat (P.pastoris, His)

Cat. No.:	HY-P74602
Synonyms:	C-C motif chemokine 5; SIS-delta; T-cell-specific protein RANTES; Ccl5; Scya5
Species:	Rat
Source:	P. pastoris
Accession:	P50231 (S25-S92)
Gene ID:	81780
Molecular Weight:	Approximately 9.2 kDa

PROPERTIES

Appearance	Solution
Formulation	Supplied as a 0.2 µm filtered solution of PBS, pH 7.4.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	N/A.
Storage & Stability	Stored at -80°C for 1 year. It is stable at -20°C for 3 months after opening. It is recommended to freeze aliquots at -80°C for extended storage. Avoid repeated freeze-thaw cycles.
Shipping	Shipping with dry ice

DESCRIPTION

Background

CCL5, also known as RANTES (Regulation of Activation, Expression and Secretion by Normal T Cells), belongs to the CC subfamily of chemokines. The CCL5 gene is located in the q11.2-q12 region of human chromosome 17 and encodes CCL5 a protein with a molecular weight of 8 kDa. CCL5 can be expressed by T cells, monocytes, NK cells, epithelial cells, fibroblasts, and CCL5 can bind to receptors CCR1, CCR3, CCR4 and CCR5, with the highest affinity for CCR5^[1]. CCL5 binding to CCR5 leads to phosphorylation of phosphatidylinositol 3-kinase (PI3K), and the phosphorylated PI3K further acidifies protein kinase B on serine 473, and the Akt/PKB complex phosphorylates and inactivates the serine/threonine protein kinase GSK-3. In parallel, CCL5 binding to CCR5 induces Bcl2 protein expression, which promotes cell apoptosis. CCL5 can also act as a potential agonist for the G protein-coupled receptor GPR75, which, together with GPR75, may play a role in neuronal survival by activating downstream signaling pathways involving PI3, Akt, and MAP kinases, and in insulin secretion by pancreatic islet cells by activating GPR75^[2]. In addition to acting as a chemotactic agent, CCL5 is also a major HIV suppressor produced by CD⁸⁺ T cells. It is involved in inflammation maintenance, transplantation, antiviral immunity, tumor development, and many human diseases and disorders such as viral hepatitis or COVID-19^[3].

REFERENCES

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- [1]. V Appay, et al. RANTES: a versatile and controversial chemokine. Trends Immunol. 2001 Feb;22(2):83-7.
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- [3]. F Cocchi, et al. Identification of RANTES, MIP-1 alpha, and MIP-1 beta as the major HIV-suppressive factors produced by CD8+ T cells. Science. 1995 Dec 15;270(5243):1811-5.
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- [5]. Khalid Benamar, et al. Elevated level of the proinflammatory chemokine, RANTES/CCL5, in the periaqueductal grey causes hyperalgesia in rats. Eur J Pharmacol. 2008 Sep 11;592(1-3):93-5.
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Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA