RANTES/CCL5 Protein, Mouse

Cat. No.:	HY-P71890
Synonyms:	Ccl5; Scya5C-C motif chemokine 5; MuRantes; SIS-delta; Small-inducible cytokine A5; T-cell-specific protein RANTES
Species:	Mouse
Source:	E. coli
Accession:	P30882 (S24-S91)
Gene ID:	20304
Molecular Weight:	Approximately 7.9 kDa

PROPERTIES

AA Sequence	S P Y G S D T T P C C F A Y L S L A L P R A H V K E Y F Y T S S K C S N L A V V F V T R R N R Q V C A N P E K K W V Q E Y I N Y L E M S
Biological Activity	Fully biologically active when compared to standard. The biological activity determined by a chemotaxis bioassay using human T lymphocytes is in a concentration range of 1.0-10 ng/mL.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 μm concentrated solution in 30 % Acetonitrile and 0.1 % TFA.
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	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 CD^{8+} 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

[1]. V Appay, et al. RANTES: a versatile and controversial chemokine. Trends Immunol. 2001 Feb;22(2):83-7.

[2]. Zhen Zeng, et al. CCL5/CCR5 axis in human diseases and related treatments. Genes Dis. 2022 Jan;9(1):12-27.

[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.

[4]. Sara González-Rodríguez, et al. Hyperalgesic and hypoalgesic mechanisms evoked by the acute administration of CCL5 in mice. Brain Behav Immun. 2017 May;62:151-161.

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