

RANTES/CCL5 Protein, Human (His-SUMO)

Cat. No.:	HY-P78399
Synonyms:	MuRantes; SIS-delta; Scya5; Ccl5; D17S136E; eoCP; RANTES; SCYA5; SISd; TCP228; CCL5
Species:	Human
Source:	E. coli
Accession:	P13501 (S24-S91)
Gene ID:	6352
Molecular Weight:	15-18 kDa & 22-25 kDa

PROPERTIES

Biological Activity	Immobilized Human CCL5, His Tag at 0.5µg/ml (100µl/Well) on the plate. Dose response curve for Anti-CCL5 Antibody, hFc Tag with the EC ₅₀ of 8ng/ml determined by ELISA.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.22 µm filtered solution of 20 mM Tris, 0.3M NaCl, pH 8.5. Normally 8% trehalose is added as protectant before lyophilization.
Endotoxin Level	<1 EU/µg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH ₂ 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	<p>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].</p>
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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]. Shih-Wei Wang, et al. CCL5 and CCR5 interaction promotes cell motility in human osteosarcoma. PLoS One. 2012;7(4):e35101.
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