

HCC-1/CCL14 Protein, Human (74a.a, His)

Cat. No.:	HY-P75148
Synonyms:	C-C motif chemokine 14; SCYA14; CCL14; CCL14a; HCC1
Species:	Human
Source:	E. coli
Accession:	Q16627 (T20-N93)
Gene ID:	6358
Molecular Weight:	Approximately 12 kDa

PROPERTIES

Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 µm filtered solution of PBS, pH 8.0. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 are added as protectants 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

CCL14, also known as HCC-1, is a human plasma chemokine originally collected and purified from the hemofiltrate of patients with chronic renal failure. CCL14 belongs to the small cytokine family of CC chemokines, a cluster of chemokines located on human chromosome 17 that can be expressed in a variety of tissues, including spleen, bone marrow, liver, muscle, and intestine. CCL14 has weak activity against human monocytes and no activity against T lymphocytes, neutrophils, and eosinophils. CCL14 is weakly active against human monocytes and inactive against T lymphocytes, neutrophils, and eosinophils. CCL14 acts as a protein precursor that requires protein hydrolysis to obtain receptor affinity and is processed to yield a mature active protein containing 74 amino acids. The processed HCC-1(9-74) is a chemokine that attracts monocytes, eosinophils and T cells and binds to CCR1, CCR3 and CCR5 chemokine receptors^[2]. Post-translational modifications of CCL14 chemokines, such as N-terminal truncation and glycosylation, also result in differential signaling compared to unmodified ones. For example, both full-length CCL14(1-74) and truncated isoform CCL14(9-74) bind to atypical chemokine receptor 2 (ACKR2), but only truncated CCL14(9-74) shows a propensity for β-arrestin and induces receptor internalization of ACKR2 compared to CCL14(1-74). Meanwhile, CCL14(1-74) was a weak agonist of chemokine receptor CCR1, but its activity was significantly enhanced after proteolytic cleavage to CCL14(9-74)^[1]. CCL14 has been shown to inhibit HCC cell proliferation by inhibiting cell cycle progression and promoting apoptosis in hepatocellular carcinoma (HCC) cells. CCL14 inhibits HCC tumor growth in nude mice in vivo. CCL14 is also involved in the pathogenesis and

progression of various diseases, including allergic airway inflammation and some cancers^[2].

REFERENCES

- [1]. Siyao Wang, et al. Glycosylation Regulates N-Terminal Proteolysis and Activity of the Chemokine CCL14. *ACS Chem Biol.* 2021 Jun 18;16(6):973-981.
- [2]. Mengxuan Zhu, et al. CCL14 serves as a novel prognostic factor and tumor suppressor of HCC by modulating cell cycle and promoting apoptosis. *Cell Death Dis.* 2019 Oct 22;10(11):796.
- [3]. Natalie J Hannan, et al. CX3CL1 and CCL14 regulate extracellular matrix and adhesion molecules in the trophoblast: potential roles in human embryo implantation. *Biol Reprod.* 2008 Jul;79(1):58-65.
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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