



Recombinant Human C-C chemokine receptor type 9 (CCR9)-VLPs (Active)

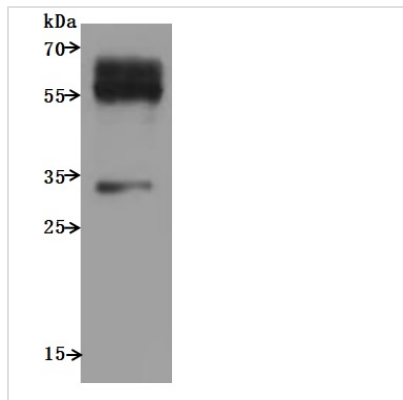
Product Code	CSB-MP004848HU
Abbreviation	Recombinant Human CCR9 protein-VLPs (Active)
Storage	The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.
Uniprot No.	P51686
Form	Liquid or Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 µm filtered PBS, 6% Trehalose, pH 7.4.
Product Type	Recombinant Human C-C chemokine receptor type 9(CCR9)-VLPs (Active)
Immunogen Species	Homo sapiens (Human)
Biological Activity	Measured by its binding ability in a functional ELISA. Immobilized Human CCR9 at 10 µg/mL can bind Anti-CCR9 recombinant antibody (CSB-RA004848MA1HU). The EC50 is 31.67-36.83 ng/mL. The VLPs (CSB-MP3838) is negative control.
Purity	Greater than 95% as determined by SEC-HPLC.
Sequence	MTPTDFTSPIPNMADDYGSESTSSMEDYVNFNFTDFYCEKNNVRQFASHFLP PLYWLVFIVGALGNSLVILVYWYCTRVRTMTDMFLNLAIADLLFLVTLFPWAIA AADQWKQTFMCKVVNSMYKMFYSCVLLIMCISVDYIAIAQAMRAHTWRE KRLLYSKMCFTIWWLAAALCIPEILYSQIKEESGIAICTMVYPSESTKLKSAVL TLKVILGFFLPFVVMACCYTIIHTLIQAKKSSKHKALKVTITVLTVFVLSQFPYNCI LLVQTIDAYAMFISNCAVSTNIDICFQVTQTIAFFHSCLNPVLYVFGFRFRDL VKTLKNLGCISQAQWVSFTRREGSLKLSSMLLETTSGALS
Research Area	Cancer
Source	Mammalian cell
Target Names	CCR9
Expression Region	1-369aa
Notes	The VLPs are expressed from human 293 cells (HEK293). Mix the sample gently by repeatedly pipetting it up and down. Do not vortex. Repeated freezing and thawing is not recommended. Store the protein at -20°C/-80°C upon receiving it, and ensure to avoid repeated freezing and thawing, otherwise, it will affect the protein activity. The immunization strategy should be optimized (antigen dose, regimen and adjuvant).
Tag Info	C-terminal 10xHis-tagged(This tag can be tested only under denaturing conditions)
Mol. Weight	43.4 kDa



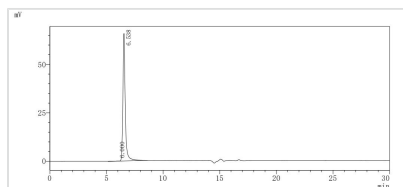
Protein Length

Full Length

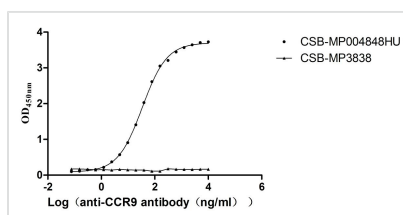
Image



CSB-MP004848HU is detected by Mouse anti-6*His monoclonal antibody.



The purity of VLPs was greater than 95% as determined by HPLC-SEC.



Measured by its binding ability in a functional ELISA. Immobilized Human CCR9 at 10 μ g/mL can bind Anti-CCR9 recombinant antibody (CSB-RA004848MA1HU)?the EC₅₀ is 31.67-36.83 ng/mL. The VLPs (CSB-MP3838) is negative control.

Description

The recombinant human CCR9 protein is a mammalian cell-derived virus-like particle (VLP) formulation engineered to present the full-length human C-C chemokine receptor type 9, spanning residues 1-369, with a C-terminal 10xHis tag for purification. Produced as lyophilized powder, this VLP-embedded protein exhibits >95% purity as validated by SEC-HPLC, ensuring monodispersity and structural integrity. Functional characterization via ligand-binding assays demonstrates its capacity to interact specifically with the anti-CCR9 recombinant antibody (CSB-RA004848MA1HU) when immobilized at 10 μ g/mL, yielding an effective concentration for half-maximal binding (EC₅₀) between 31.67 and 36.83 ng/mL. The VLP architecture mimics native membrane topology, preserving conformational epitopes critical for studying receptor-ligand interactions and antibody neutralization mechanisms. This particulate presentation system enhances avidity effects while maintaining solubility, making it particularly suitable for vaccine development, immune response profiling, and high-throughput screening of therapeutic candidates targeting chemokine-mediated signaling pathways.

The CCR9 protein, a crucial member of the chemokine receptor family, has emerged as a significant player in the immune response and various cancers. CCR9's primary ligand, CCL25 (thymus-expressed chemokine), directs immune cell migration, particularly impacting T lymphocytes' localization to the intestines



and thymus. This homing ability is vital for maintaining immune surveillance and tolerance in the gut, where CCR9+ T cells are preferentially recruited to sites of inflammation or injury, thus influencing local immune responses and potentially contributing to the pathogenesis of autoimmune diseases like Crohn's disease [1][2][3][4].

Functionally, CCR9 has been implicated in regulating T cell development and function. In particular, it is expressed on various T cell subsets, including CD4+ and CD8+ T cells, and plays a critical role in their differentiation and survival through signaling pathways such as PI3K/Akt [3][5]. CCR9+ dendritic cells also contribute to immune modulation, enhancing the immunological tolerance necessary to prevent inappropriate immune responses to commensal gut microbiota and food antigens [2][3].

The expression of CCR9 is not limited to the immune system. It has been shown to play a role in cancer pathology. Overexpression of CCR9 has been associated with increased cell motility and invasiveness in several malignancies, including lung adenocarcinoma, ovarian cancer, and melanoma [6][7][8]. CCR9 is essential for the normal immune function of lymphocytes homing to mucosal sites and also facilitates the metastasis of cancer cells to the intestinal environment. This property is particularly evident in studies demonstrating that CCR9+ tumor cells preferentially migrate to tissues where CCL25 is expressed, suggesting a mechanism for cancer progression and metastasis [7-9].

References:

- [1] M. Pathak, P. Padghan, N. Halder, N. Kulkarni, S. Sonar, & G. Lal. Ccr9 signaling in dendritic cells drives the differentiation of foxp3+ tregs and suppresses the allergic ige response in the gut. *European Journal of Immunology*, vol. 50, no. 3, p. 404-417, 2019. <https://doi.org/10.1002/eji.201948327>
- [2] H. Hadeiba, T. Sato, A. Habtezion, C. Oderup, J. Pan, & E. Butcher. Ccr9 expression defines tolerogenic plasmacytoid dendritic cells able to suppress acute graft-versus-host disease. *Nature Immunology*, vol. 9, no. 11, p. 1253-1260, 2008. <https://doi.org/10.1038/ni.1658>
- [3] M. Pathak and G. Lal. The regulatory function of ccr9+ dendritic cells in inflammation and autoimmunity. *Frontiers in Immunology*, vol. 11, 2020. <https://doi.org/10.3389/fimmu.2020.536326>
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- [6] Y. Zhong, L. Jiang, et al. Expression of cc chemokine receptor 9 predicts poor prognosis in patients with lung adenocarcinoma. *Diagnostic Pathology*, vol. 10, no. 1, 2015. <https://doi.org/10.1186/s13000-015-0341-x>
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[9] E. Heinrich, A. Arrington, et al. Paracrine activation of chemokine receptor ccr9 enhances the invasiveness of pancreatic cancer cells. Cancer Microenvironment, vol. 6, no. 3, p. 241-245, 2013. <https://doi.org/10.1007/s12307-013-0130-6>

Reconstitution

We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL. Aliquot for long-term storage at -80°C. Solubilize for 60 minutes at room temperature with occasional gentle mixing. Avoid vigorous shaking or vortexing.

Shelf Life

The shelf life is related to many factors, storage state, buffer ingredients, storage temperature and the stability of the protein itself. Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.