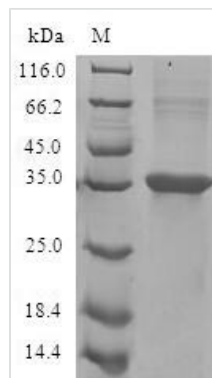




Recombinant Human Eotaxin (CCL11)

Product Code	CSB-EP004775HU
Relevance	In response to the presence of allergens, this protein directly promotes the accumulation of eosinophils, a prominent feature of allergic inflammatory reactions. Binds to CCR3.
Abbreviation	Recombinant Human CCL11 protein
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.	P51671
Alias	C-C motif chemokine 11 Eosinophil chemotactic protein Small-inducible cytokine A11
Product Type	Recombinant Protein
Immunogen Species	Homo sapiens (Human)
Purity	Greater than 90% as determined by SDS-PAGE.
Sequence	GPASVPTTCCFNLNRKIPLQRLESYRRITSGKCPQKAVIFKTKLAKDICADPKK KWVQDSMKYLDQKSPTPKP
Research Area	Immunology
Source	E.coli
Target Names	CCL11
Protein Names	Recommended name: Eotaxin Alternative name(s): C-C motif chemokine 11 Eosinophil chemotactic protein Small-inducible cytokine A11
Expression Region	1-97aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	N-terminal GST-tagged
Mol. Weight	35.4kDa
Protein Length	Full Length
Image	



(Tris-Glycine gel) Discontinuous SDS-PAGE (reduced) with 5% enrichment gel and 15% separation gel.

Description

To produce recombinant human Eotaxin (CCL11) in *E. coli*, the gene encoding the full-length CCL11 protein (1-97aa) is co-cloned into an expression vector with an N-terminal GST-tag gene and transformed into *E. coli* cells. The bacteria are grown under conditions that induce protein expression. After sufficient growth, the cells are lysed to release the recombinant CCL11 protein. Purification of this recombinant CCL11 protein is conducted by affinity chromatography. Its purity is measured using SDS-PAGE, exceeding 90%.

Human CCL11 is expressed by primary human fibroblasts and is crucial for eosinophilic chemotaxis [1]. Studies have shown that CCL11 is overexpressed in human atopic dermatitis (AD) and can be upregulated by perturbing the I κ B-NF- κ B pathway in human dermal fibroblasts [2]. CCL11 can induce angiogenic responses via the CCR3 receptor expressed by human microvascular endothelial cells [3].

CCL11 has been implicated in various immune responses. It can increase the proportion of regulatory T cells (Tregs) and the production of IL-2 and TGF- β by CD4⁺ T cells through the STAT5 signaling pathway [4]. Increased production of CCL11 is associated with aging and neuropsychiatric disorders [5]. Additionally, CCL11 levels are linked to long-term functional outcomes in patients following ischemic stroke [6].

Furthermore, CCL11 modulates monolayer permeability in human coronary artery endothelial cells and can enhance eosinophil chemotactic activity in asthma [7][8]. CCL11 expression in human airway smooth muscle cells is mediated by IL-17A through the STAT3 pathway [9].

References:

- [1] X. Zhou, H. Hu, S. Balzar, J. Trudeau, & S. Wenzel, Mapk regulation of il-4/il-13 receptors contributes to the synergistic increase in ccl11/eotaxin-1 in response to tgf- β 1 and il-13 in human airway fibroblasts, *The Journal of Immunology*, vol. 188, no. 12, p. 6046-6054, 2012.
<https://doi.org/10.4049/jimmunol.1102760>
- [2] K. Ko, J. Merlet, B. DerGarabedian, Z. Huang, Y. Suzuki-Horiuchi, M. Hedberget al., Nf- κ b perturbation reveals unique immunomodulatory functions in prx1⁺ fibroblasts that promote development of atopic dermatitis, *Science Translational Medicine*, vol. 14, no. 630, 2022.



<https://doi.org/10.1126/scitranslmed.abj0324>

[3] R. Salcedo, H. Young, M. Ponce, J. Ward, H. Kleinman, W. Murphy et al., Eotaxin (ccl11) induces in vivo angiogenic responses by human ccr3+ endothelial cells, *The Journal of Immunology*, vol. 166, no. 12, p. 7571-7578, 2001. <https://doi.org/10.4049/jimmunol.166.12.7571>

[4] R. Wang and K. Huang, Ccl11 increases the proportion of cd4+cd25+foxp3+ treg cells and the production of il-2 and tgf-β by cd4+ t cells via the stat5 signaling pathway, *Molecular Medicine Reports*, 2020. <https://doi.org/10.3892/mmr.2020.11049>

[5] M. Ivanovska, Z. Abdi, M. Murdjeva, D. Macêdo, A. Maes, & M. Maes, Ccl11 or eotaxin-1: an immune marker for ageing and accelerated ageing in neuro-psychiatric disorders,, 2020. <https://doi.org/10.20944/preprints202001.0370.v1>

[6] M. Roy-O'Reilly, R. Ritzel, S. Conway, I. Staff, G. Fortunato, & L. McCullough, Ccl11 (eotaxin-1) levels predict long-term functional outcomes in patients following ischemic stroke, *Translational Stroke Research*, vol. 8, no. 6, p. 578-584, 2017. <https://doi.org/10.1007/s12975-017-0545-3>

[7] M. Jamaluddin, X. Wang, H. Wang, C. Rafael, Q. Yao, & C. Chen, Eotaxin increases monolayer permeability of human coronary artery endothelial cells, *Arteriosclerosis Thrombosis and Vascular Biology*, vol. 29, no. 12, p. 2146-2152, 2009. <https://doi.org/10.1161/atvbaha.109.194134>

[8] G. Dent, C. Hadjicharalambous, T. Yoshikawa, R. Handy, J. Powell, I. Anderson et al., Contribution of eotaxin-1 to eosinophil chemotactic activity of moderate and severe asthmatic sputum, *American Journal of Respiratory and Critical Care Medicine*, vol. 169, no. 10, p. 1110-1117, 2004. <https://doi.org/10.1164/rccm.200306-855oc>

[9] A. Saleh, L. Shan, A. Halayko, S. Kung, & A. Gounni, Critical role for stat3 in il-17a-mediated ccl11 expression in human airway smooth muscle cells, *The Journal of Immunology*, vol. 182, no. 6, p. 3357-3365, 2009. <https://doi.org/10.4049/jimmunol.0801882>

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. We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.

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.