

ProductInformation

EOTAXIN, BIOTIN CONJUGATE

Mouse

Product Number **E 8403**

Storage Temperature -20°C

Synonyms: SCYA11, CCL11

Product Description

Mouse eotaxin is a synthetic protein that is biotinylated on the carboxyl terminus. The predicted molecular mass is approximately 8.2 kDa.

Chemokines comprise a group of small, structurally-related molecules that are chemoattractants for leukocytes. As such, they regulate cell trafficking of leukocytes and the development, homeostasis, and function of the immune system. Chemokines are expressed in many cell types, including cells of the central nervous system, bone marrow, major organs, endothelial linings, as well as in many transformed cell lines.

Chemokines are divided into two major subfamilies based on the arrangement of the first two conserved cysteines. In the CC (β) subfamily these cysteines are adjacent to each other; and in the CXC (α) subfamily the first two cysteines are separated by a single amino acid. CXC chemokines are further subdivided into ELR and non-ELR types based on the presence or absence of a glu-leu-arg sequence preceding the CXC motif in the amino terminal region.¹ ELR-containing chemokines are chemotactic for neutrophils. Most mature chemokines consist of approximately 70 amino acid residues and have internal disulfide bonds. All known α chemokines share 25-90% sequence homology and most have a four exon, three intron structure. Their genes cluster on human chromosome 4q12-q21. All known β chemokines share 25-70% sequence homology and have a three exon, two intron structure. Their genes cluster on human chromosome 17.

Eotaxin, a member of the β (CC) chemokine family of inflammatory and immunoregulatory cytokines, was originally purified from bronchoalveolar lavage fluid of guinea pigs sensitized by aerosol challenge with

ovalbumin. Mouse eotaxin shares approximately 60 % sequence homology with that of human and guinea pig. It also shows high sequence identity to the MCP family of cytokines. Mouse eotaxin cDNA encodes a 97 amino acid residue precursor protein from which the amino -terminal 23 amino acid residues are cleaved to generate mature mouse eotaxin. The genomic organization of the human and murine eotaxin gene promotor demonstrates conserved regulatory elements, such as NF- κ B, interferon- γ response element, and glucocorticoid response element.² Eotaxin is a selective ligand for the CC chemokine receptor 3 (CCR3) that is found on eosinophils, basophils, and Th2 lymphocytes.^{3,4}

Eotaxin is a potent eosinophil activator and chemo-attractor. As an activator, it mediates inflammation by initiating actin polymerization intra-cellularly and inducing the production of reactive oxygen species.⁵ As a chemoattractant both *in vivo* and *in vitro*, it exhibits potent activity on eosinophils, but not on mononuclear cells or neutrophils.⁵⁻⁸ Eotaxin has the ability to prime eosinophils for chemotaxis, direct their migration, and activate inflammatory activity. It is involved in allergic inflammation. Eotaxin mRNA is expressed in a variety of tissues. Its expression is induced in cultured endothelial cells in response to interferon- γ (IFN- γ). Eotaxin mRNA is also induced in response to the transplantation of interleukin-4 (IL-4)-secreting tumor cells.⁹

Recent studies indicate that eotaxin is an antagonist at CCR2 and an agonist at CCR5 and, thus, can fine-tune the responses of monocytes that express these receptors. For example, it decreases the responsiveness of monocytes to MCP-1, a selective CCR2 ligand, and induces the internalization of CCR5 in monocytes and transfected cells.¹⁰

Reagents

Eotaxin is supplied as a lyophilized powder.

Preparation Instructions

Reconstitute the contents of the vial using sterile phosphate-buffered saline (PBS) containing 0.1% human or bovine serum albumin. Prepare a stock solution of no less than 20 µg/ml. Vortex thoroughly.

Storage/Stability

Eotaxin is stable for at least 12 months when stored at –20 °C. The stock solution should be stored at –20 °C in single-use aliquots. Avoid repeated freeze-thaw cycles to prevent denaturing the protein. Do not store in a frost-free freezer.

Product Profile

The activity of synthetic mouse eotaxin is measured by its ability to induce chemotaxis of human eosinophils. The ED₅₀ for this effect generally ranges from 10 to 40 ng/ml.

Note: In order to obtain the best results using different techniques and preparations we recommend determining the optimal working concentration by titration.

Related Products

For additional Eotaxin products see the Sigma Catalog or web site:

E 8399 – Eotaxin-3 (CCL26), Human, Recombinant

E 9152 – Eotaxin-2, Mouse, Recombinant

E 4150 – Monoclonal Anti-Eotaxin, Clone 42285.111

E 5768 – Monoclonal Anti-Eotaxin-2, clone 61016.11

References

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7. Garcia-Zepeda, E.A., et al., Human eotaxin is a specific chemoattractant for eosinophil cells and provides a new mechanism to explain tissue eosinophilia. *Nat. Med.*, **2**, 449-456 (1996).
8. Ponad, P.D., et al., Cloning of the human eosinophil chemoattractant, eotaxin: expression, receptor binding, and functional properties suggest a mechanism for the selective recruitment of eosinophils., *J. Clin. Invest.*, **97**, 604-612 (1996).
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