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Product Information

Fractalkine, Chemokine Domain, human
recombinant, expressed in *Escherichia coli*

Catalog Number **F1300**
Storage Temperature $-20\text{ }^{\circ}\text{C}$

Product Description

Fractalkine, also named neurotactin, is a novel chemokine identified through bioinformatics. It has a unique C-X₃-C cysteine motif near the N-terminal and is the first member of a fourth branch of the chemokine superfamily.¹ Unlike other known chemokines, fractalkine is a type 1 membrane protein containing a chemokine domain tethered on a long mucin-like stalk.² Human fractalkine cDNA encodes a 397 amino acid residue membrane protein with a 24 residue predicted signal peptide, a 76 residue chemokine domain, a 241 residue stalk region containing 17 degenerate mucin-like repeats, a 19 residue transmembrane segment and a 37 residue cytoplasmic domain. The extracellular domain can be released, possibly by proteolysis at the dibasic cleavage site proximal to the membrane, to generate soluble fractalkine.

Fractalkine mRNA has been detected in various tissues including the brain and heart. The expression of fractalkine is reported to be up-regulated in endothelial cells and microglia by inflammatory signals.² The receptor for fractalkine, CX3CR1, mediates both leukocyte migration and adhesion.³ The soluble chemokine domain of human fractalkine is reported to chemoattract T cells and monocytes, while the soluble chemokine domain of mouse fractalkine is chemotactic for neutrophils and T-lymphocytes, but not monocytes.⁴

A DNA sequence encoding the chemokine domain of mature human fractalkine protein sequence⁴ is expressed in *E. coli*. The recombinant protein, a 76 amino acid residue, has a predicted molecular mass of ~8.5 kDa.

Lyophilized from a 0.2 μm filtered solution of 30% acetonitrile and 0.1% TFA containing 50 μg BSA per μg fractalkine.

Purity: $\geq 97\%$ (SDS-PAGE)

Endotoxin: $\leq 0.1\text{ ng}/\mu\text{g}$ fractalkine

Preparation Instructions

Reconstitute the contents of the vial using sterile PBS containing at least 0.1% HSA or BSA to prepare a stock solution of no less than 50 $\mu\text{g}/\text{ml}$.

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

Store at $-20\text{ }^{\circ}\text{C}$. Upon reconstitution, store at 2-8 $^{\circ}\text{C}$ for one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended.

Product Profile

Biological activity is measured by:

1. its ability to chemoattract freshly isolated peripheral blood lymphocytes with $\text{ED}_{50} = 2\text{-}5\text{ ng}/\text{mL}$, or
2. its ability to chemoattract mouse BaF/3 cells transfected with hCX3CR1 with $\text{ED}_{50} = 0.3\text{-}1.5\text{ ng}/\text{mL}$

References

1. Mackay, C.R., Chemokines: what chemokine is that?, *Curr. Biol.*, **7**, 384-386 (1997).
2. Pan, Y., et al., Neurotactin, a membrane-anchored chemokine upregulated in brain inflammation, *Nature*, **387**, 611-617 (1997).
3. Imai, T., et al., Identification and molecular characterization of fractalkine receptor CX3CR1, which mediates both leukocyte migration and adhesion, *Cell*, **91**, 521-530 (1997).
4. Bazan, J.F., et al., A new class of membrane-bound chemokine with a CX3C motif, *Nature*, **385**, 640-644 (1997).

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