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Product Information

Complement C5a
human, recombinant
expressed in *E. coli*

Product Number **C 5788**
Storage Temperature below 0 °C

CAS# 80295-54-1
Synonyms: rC5a; C5a anaphylatoxin

Product Description

Complement C5a is a human, recombinant protein expressed in *E. coli*. This non-glycosylated form of the protein with glutathione attached to Cys²⁷ has a molecular mass of approximately 8,600 Da. This product contains "native" arginine and is not "des-arginine". It is a mixture of C5a (approximately 35%) and C5a having an added methionyl residue at the amino terminus (approximately 65%). The recombinant C5a exhibits activity similar to that of serum derived C5a in binding neutrophil receptors and in inducing chemotaxis.¹

Human complement C5a is a 74 amino acid glycopeptide with a molecular mass of 11,200 generated during complement activation from the α -chain of complement C5. C5a is a proteolytic fragment of the C5 α -chain produced through the action of C5 convertases in the classical and alternative complement pathways (C4b2a4b, C3bBb3b).

C5a is an anaphylatoxin. It acts as an inflammatory chemoattractant.² C5a stimulation of human neutrophils leads to STAT3 phosphorylation on Ser⁷²⁷. It mediates IL-8 release from bronchial epithelial cells.³ C5a anaphylatoxin activity on hepatocytes results indirectly from interaction with nonparenchymal cell via prostanoid secretion.⁴

Customers that had been using Product No. 60897 may now use Product No. C 5788 with confidence that they are using material from the same manufacturer.

Purity: approximately 95% (SDS-PAGE, HPLC)

Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in water; however, if reconstituted at a concentration of less than 1 mg per ml, the buffer should contain a carrier protein such as gelatin or albumin at a minimum concentration of 0.25% (w/v) to prevent adsorptive loss of C5a. A solution made in aqueous buffer and divided into aliquots is stable at least 6 months if stored at -70 °C. The material is extremely unstable to temperature changes, so it should not be subjected to multiple freeze-thaw cycles.

Storage/Stability

The product ships on dry ice and storage below 0 °C is recommended.

References

1. Mollison, K.W., et al., High-level C5a gene expression and recovery of recombinant human C5a from *Escherichia coli*. *Agents and Actions*, **21**, 366-70 (1987).
2. Nolte, C., et al., Complement 5a controls motility of murine microglial cells *in vitro* via activation of an inhibitory G-protein and the rearrangement of the actin cytoskeleton. *Neuroscience*, **73**, 1091-1107 (1996).

3. Wyatt, T.A., et al., Protein kinase C activation is required for cigarette smoke-enhanced C5a-mediated release of interleukin-8 in human bronchial epithelial cell. *Am. J. Respir. Cell Mol. Biol.*, **21**, 283-8 (1999).
4. Schieferdecker, H.L., et al., Increase by anaphylatoxin C5a of glucose output in perfused rat liver via prostanoids derived from nonparenchymal cells: direct action of prostaglandins and indirect action of thromboxane A₂ on hepatocytes. *Hepatology*, **30**, 454-61 (1999).

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