

Human Complement C5a Protein

Catalog Number: 10604-HNAE



Sino Biological
Biological Solution Specialist

General Information

Gene Name Synonym:

C5a; C5b; C5D; C5Da; Complement 5a; CPAMD4; ECLZB

Protein Construction:

A DNA sequence encoding the active form of human C5a (Leu 679-Arg 751) was expressed.

Source: Human

Expression Host: E. coli

QC Testing

Purity: > 94 % as determined by SDS-PAGE

Bio Activity:

Measured by its ability to induce N-acetyl- β -D-glucosaminidase release from differentiated U937 human histiocytic lymphoma cells. The ED_{50} for this effect is typically 5-15 ng/ml.

Endotoxin:

Please contact us for more information.

Stability:

Samples are stable for up to twelve months from date of receipt at -70 °C

Predicted N terminal: Based on N-terminal sequencing analysis, the first 7 aa of C5a is: MLQKKIE

Molecular Mass:

The recombinant human C5a consists of 74 amino acids and has a predicted molecular mass of 8.3 kDa which is also estimated by SDS-PAGE.

Formulation:

Lyophilized from sterile PBS, pH 7.4

Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization. Specific concentrations are included in the hardcopy of COA. Please contact us for any concerns or special requirements.

Usage Guide

Storage:

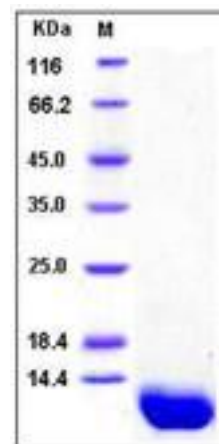
Store it under sterile conditions at -20°C to -80°C upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

Avoid repeated freeze-thaw cycles.

Reconstitution:

Detailed reconstitution instructions are sent along with the products.

SDS-PAGE:



Protein Description

C5a is a protein fragment released from complement component C5. This 74 amino acid peptide in humans is generated by the cleavage of C5a convertase on the C5 α -chain during the classical, alternative, and lectin pathways of complement activation. The structure of C5a includes a core region consisting of four, anti-parallel α -helices held together by three disulfide linkages and a structured C-terminal tail, and C5a is rapidly metabolised by carboxypeptidase B to a 73 amino acid low activity form, C5a des-Arg. C5a is an extremely potent proinflammatory mediator, as well as a potent chemotactic factor for neutrophils and other leukocytes. It causes histamine release, increases in vascular permeability, induces several cytokines production from leukocytes, enhances neutrophil-endothelial cell adhesion, and augments the humoral and cell-mediated immune response. C5a is quickly metabolised by carboxypeptidases, forming the less potent C5adesArg. Acting via a classical G protein-coupled receptor, CD88, C5a and C5adesArg exert a number of effects essential to the innate immune response, while their actions at the more recently discovered non-G protein-coupled receptor, C5L2 (or GPR77), remain unclear. The widespread expression of C5a receptors throughout the body allows C5a to elicit a broad range of effects. Thus, C5a has been found to be a significant pathogenic driver in a number of immuno-inflammatory diseases, making C5a inhibition an attractive therapeutic strategy. C5a is a strong chemoattractant and is involved in the recruitment of inflammatory cells such as neutrophils, eosinophils, monocytes, and T lymphocytes, in activation of phagocytic cells and release of granule-based enzymes and generation of oxidants, all of which may contribute to innate immune functions or tissue damage. Accordingly, the anaphylatoxin C5a is implicated in a variety of diseases such as rheumatoid arthritis, systemic lupus erythematosus, reperfusion injury, Alzheimer's disease, and sepsis.

References

1. Guo RF, *et al.* (2005) Role of C5a in inflammatory responses. *Annu Rev Immunol.* 23: 821-52.
2. Guo RF, *et al.* (2006) C5a, a therapeutic target in sepsis. *Recent Pat Antiinfect Drug Discov.* 1(1): 57-65.
3. Manthey HD, *et al.* (2009) Complement component 5a (C5a). *Int J Biochem Cell Biol.* 41(11): 2114-7.

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