

Native Human C4a Anaphylatoxin (Not Recombinant)

Cat. No. C4BPA-100H Lot. No. (See product label)

SPECIFICATION

Product Overview

Species Human

Source Human Serum

Description

Natural human C4a is prepared by cleavage of human C4 protein by human C1s. It is produced during activation of both the classical and lectin pathways of complement. C4a is a member of the anaphylatoxin family of three proteins (C3a, C4a and C5a) produced by the activation of complement (Hugli, T.E. et al. (1981)). It is an unglycosylated polypeptide containing 77 amino acids with a molecular mass of 8,759 daltons. Many of the biological functions of C4a are similar to those of C3a, but the specific activities are far below those of C3a. C4a activity is so low, in fact, that it was initially thought to be inactive. These measured activities include inducing muscle contraction in the guinea pig ileum test (spasmogenic activity), desensitization of muscle to C3a stimulation suggesting that the same receptor for both C3a and C4a is involved (tachyphylactic activity) and inducing vascular permeability in human skin (Gorski J.P. et al. (1979)). C4a does not show tachyphylactic activity against C5a or chemotactic activity. Removal of the C-terminal arginine by serum carboxypeptidase N destroys all these activities (Meuller-Ortiz, S.L., et al. (2009)). C4a appears to act through the C3a receptor (C3aR) which is a G-protein coupled receptor found widely distributed on peripheral tissues, lymphoid cells (neutrophils, monocytes, and eosinophils) and in the central nervous system (astrocytes, neurons and glial cells) (Law, S.K.A. and Reid, K.B.M. (1995)).

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Form	Frozen liquid
Molecular Mass	8,759 Da (single chain)
Purity	>95% by SDS-PAGE
Characteristic	Molecular weight: 8,759 calculated molecular mass. Observed mass (MALDI-TOF) is 8,762 + 9 mass units. pI = 9.0 to 9.5 (Gorski, J.P. et al. (1981)); Amino acid sequence (77 amino acids): NVNFQKAINE KLGQYASPTA KRCCQDGVTR LPMMSRCEQR AARVQQPDCR EPFLSCCQFA ESLRKSRDK GQAGLQR C4a is thought to be structurally very similar to C3a and C5a to which it is homologous. Thus its 3D structure is probably similar to the X-ray-derived crystal structure of C3a (Huber, R. et al. (1980)) and the NMR derived structure of C3a: Nettesheim, D.G. et al. (1988); Murray, I. et al. (1999).
Usage	For research use only. Not for human or drug use.
Storage	-70°C or below. Avoid freeze/thaw.
Concentration	0.5 mg/mL (see Certificate of Analysis for the actual concentration)
Storage Buffer	HEPES buffered saline, pH 7.2 (No carrier proteins added)
Preservative	None
Warning	Use normal precautions for handling human blood products.

GENE INFORMATION

Gene Name	C4BPA complement component 4 binding protein, alpha [Homo sapiens]
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Official Symbol	C4BPA
Synonyms	C4BPA; complement component 4 binding protein, alpha; C4BP, complement component 4 binding protein, alpha; C4b-binding protein alpha chain; proline-rich protein; PRP; C4BP;
Gene ID	722
mRNA Refseq	NM_000715
Protein Refseq	NP_000706
MIM	120830
UniProt ID	P04003
Chromosome Location	1q32
Pathway	CD40/CD40L signaling, organism-specific biosystem; Complement and coagulation cascades, organism-specific biosystem; Complement and coagulation cascades, conserved biosystem; Complement cascade, organism-specific biosystem; Immune System, organism-specific biosystem; Innate Immune System, organism-specific biosystem; Pertussis, organism-specific biosystem;
Function	protein binding;