

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human Complement Component C3a in direct ELISAs and Western blots. In direct ELISAs and Western blots, no cross-reactivity with recombinant human (rh) Complement Component C5a or rhComplement Component C3d is observed.
Source	Monoclonal Mouse IgG _{2B} Clone # 354113
Purification	Protein A or G purified from hybridoma culture supernatant
Immunogen	<i>E. coli</i> -derived recombinant human Complement Component C3a Ser672-Arg748 Accession # P01024
Conjugate	Alexa Fluor 647 Excitation Wavelength: 650 nm Emission Wavelength: 668 nm
Formulation	Supplied 0.2mg/ml in 1X PBS with RDF1 and 0.09% Sodium Azide *Contains <0.1% Sodium Azide, which is not hazardous at this concentration according to GHS classifications. Refer to the Safety Data Sheet (SDS) for additional information and handling instructions.

APPLICATIONS

Please Note: Optimal dilutions should be determined by each laboratory for each application. [General Protocols](#) are available in the Technical Information section on our website.

Western Blot Optimal dilution of this antibody should be experimentally determined.

PREPARATION AND STORAGE

Shipping The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.

Stability & Storage Protect from light. Do not freeze. 12 months from date of receipt, 2 to 8 °C as supplied

BACKGROUND

C3a is an anaphylotoxin polypeptide comprising amino acids (aa) 672-748 of the Complement C3 precursor protein (1-4). Anaphylatoxins are proteolytically generated from the C3, C4 and C5 alpha chains by convertases formed by other complement fragments (2). They share 30-36% aa identity, and mediate inflammatory responses that vary in strength in the order C5a > C3a > C4a (2). Like C4a and C5a, the 77 aa, 9 kDa human C3a contains six conserved cysteine residues that form a knot structure and possess an overall basic charge (4, 5). It is not glycosylated (4). The C-terminal regions of C3a and C4a, but not C5a, shows antimicrobial activity (5). Human C3a shows 67-69% aa identity with mouse, rat, guinea pig, bovine, porcine and canine C3a. C3a formation is common to all three pathways of complement activation: classical (antibody-mediated), lectin and alternative (1, 2). It binds the G-protein coupled C3a receptor (C3aR) on myeloid peripheral blood leukocytes, and on activated lymphocytes, endothelial and internal organ epithelial cells (7, 10). C3a contributes to both innate and adaptive immunity. It activates mast cells and neutrophils, triggering robust mast cell degranulation in airways during asthmatic allergen challenges (9). It enhances lipopolysaccharide-induced prostaglandin, cytokine and chemokine secretion by macrophages and other cells (1, 6-8). It assists in Th2-type inflammatory reactions and stimulates smooth muscle contraction and leukocyte chemotaxis (8, 9). Endogenous carboxypeptidase-N can remove the arginine at the C-terminus of the anaphylatoxins to create desArg forms (1). C3adesArg, also called ASP (Acylation-Stimulating Protein) is an adipocyte-derived protein that binds the C5L2 (GPR77) receptor and stimulates adipose tissue triglyceride synthesis (2, 10, 11). The anaphylactic activity of ASP is weaker than that of C3a (6, 10). C5L2 is also involved in C3a and C5a activity (11).

PRODUCT SPECIFIC NOTICES

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