SANTA CRUZ BIOTECHNOLOGY, INC.

C3a (K13/16): sc-47688

SANTA CRUZ BIOTECHNOLOGY
The Power to Question

BACKGROUND

Complement C3 precursor contains complement C3 β chain (C3b), complement C3 α chain (C3a), C3a anaphylatoxin, complement C3b α chain, complement C3c fragment, complement C3dg fragment, complement C3g fragment, complement C3d fragment and complement C3f fragment. C3a, C4a, and C5a are potent anaphylatoxins that are released during complement activation, a system of ligand-surface protein interactions specific to cells of hematopoietic lineage that aids in the elimination of pathogens. C3a and C5a secretion correlates with pathophysiological phenotypes such as asthma and bacterial meningitis. Binding of these proteins to their respective G protein-coupled receptors (C3aR, C5aR), which are present on the surface of myeloid leukocytes, induces proinflammatory events such as cellular degranulation, smooth muscle contraction, arachidonic acid metabolism, cytokine release, leukocyte activation and cellular chemotaxis. C3aR is expressed in brain and activated B-lymphocytes whereas C5aR is prevalent on the surface of hepatocyte, lung, smooth muscle, and endothelial cells. Upon activation, C3aR and C5aR are susceptible to rapid GRK-mediated phosphorylation and clathrin-coated vesicle targeting. C5aR utilizes the Ras-Raf-ERK1/2 cascade and couples to G_i/G_{16} proteins.

CHROMOSOMAL LOCATION

Genetic locus: C3 (human) mapping to 19p13.3.

SOURCE

C3a (K13/16) is a mouse monoclonal antibody raised against complement protein factor C3a of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available azide-free for inhibiting the biological activity of C3a, sc-47688 L, 200 µg/0.1 ml.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

C3a (K13/16) is recommended for detection of C3a, C3a (desArg) and C3 of human origin by Western Blotting (starting dilution 1:100, dilution range), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500); non cross-reactive with C4a or C5a of human origin.

Suitable for use as control antibody for C3 siRNA (h): sc-37068, C3 shRNA Plasmid (h): sc-37068-SH and C3 shRNA (h) Lentiviral Particles: sc-37068-V.

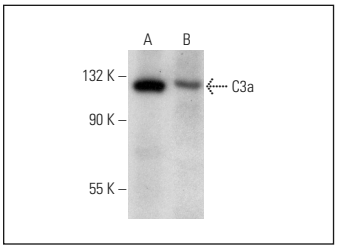
Molecular Weight of C3a: 115 kDa.

Positive Controls: human heart extract: sc-363763 or human adipose tissue extract: sc-363750.

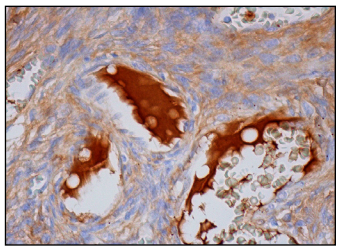
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



C3a (K13/16): sc-47688. Western blot analysis of C3a expression in human heart (**A**) and human adipose (**B**) tissue extracts.



C3a (K13/16): sc-47688. Immunoperoxidase staining of formalin fixed, paraffin-embedded human ovary tissue showing cytoplasmic staining of ovarian stroma cells and staining of plasma in blood vessels.

SELECT PRODUCT CITATIONS

1. Chen, C., et al. 2016. Low activity of complement in the cerebrospinal fluid of the patients with various prion diseases. Infect. Dis. Poverty 5: 35.
2. Melgaço, J.G., et al. 2018. Complement system as a target for therapies to control liver regeneration/damage in acute liver failure induced by viral hepatitis. J. Immunol. Res. 2018: 3917032.
3. Zhang, L., et al. 2022. C-reactive protein inhibits C3a/C3aR-dependent podocyte autophagy in favor of diabetic kidney disease. FASEB J. 36: e22332.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

CONJUGATES

See **C3 (B-9): sc-28294** for C3 antibody conjugates, including AC, HRP, FITC, PE, and Alexa Fluor® 488, 546, 594, 647, 680 and 790.