

C3a/α (R-14): sc-31299

BACKGROUND

Complement C3 precursor contains complement C3 β chain, complement C3 α chain, 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/G16 proteins.

REFERENCES

1. de Bruijn, M.H., et al. 1985. Human complement component C3: cDNA coding sequence and derived primary structure. *Proc. Natl. Acad. Sci. USA* 82: 708-712.
2. Buhl, A.M., et al. 1995. Mitogen-activated protein kinase activation requires two signal inputs from the human anaphylatoxin C5α receptor. *J. Biol. Chem.* 270: 19828-19832.
3. Stahel, P.F., et al. 1997. TNF-α-mediated expression of the receptor for anaphylatoxin C5α on neurons in experimental *Listeria* meningoencephalitis. *J. Immunol.* 159: 861-869.
4. Settmacher, B., et al. 1999. Modulation of C3α activity: internalization of the human C3α receptor and its inhibition by C5α. *J. Immunol.* 162: 7409-7416.
5. Langkabel, P., et al. 1999. Ligand-induced phosphorylation of anaphylatoxin receptors C3αR and C5αR is mediated by G protein-coupled receptor kinases. *Eur. J. Immunol.* 29: 3035-3046.
6. Humbles, A.A., et al. 2000. A role for the C3α anaphylatoxin receptor in the effector phase of asthma. *Nature* 406: 998-1001.

CHROMOSOMAL LOCATION

Genetic locus: C3 (human) mapping to 19p13.3; C3 (mouse) mapping to 17 D.

SOURCE

C3a/α (R-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of C3 of human origin.

STORAGE

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

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-31299 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

C3a/α (R-14) is recommended for detection of C3 precursor, C3a anaphylatoxin and C3 α chain of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

C3 (R-14) is also recommended for detection of C3 precursor, C3a anaphylatoxin and C3 α chain in additional species, including canine, bovine and porcine.

Suitable for use as control antibody for C3 siRNA (h): sc-37068, C3 siRNA (m): sc-37069, C3 shRNA Plasmid (h): sc-37068-SH, C3 shRNA Plasmid (m): sc-37069-SH, C3 shRNA (h) Lentiviral Particles: sc-37068-V and C3 shRNA (m) Lentiviral Particles: sc-37069-V.

Molecular Weight of C3a/α: 115 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RESEARCH USE

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

PROTOCOLS

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