SANTA CRUZ BIOTECHNOLOGY, INC.

C3aR (17): sc-53782

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/G_{16} 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 C5a receptor. J. Biol. Chem. 270: 19828-19832.
3. Stahel, P.F., et al. 1997. TNF-α-mediated expression of the receptor for anaphylatoxin C5a on neurons in experimental *Listeria* meningoencephalitis. J. Immunol. 159: 861-869.
4. Settmacher, B., et al. 1999. Modulation of C3a activity: internalization of the human C3a receptor and its inhibition by C5a. J. Immunol. 162: 7409-7416.

CHROMOSOMAL LOCATION

Genetic locus: C3AR1 (human) mapping to 12p13.31.

SOURCE

C3aR (17) is a mouse monoclonal antibody raised against C3aR of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

C3aR (17) is available conjugated to either phycoerythrin (sc-53782 PE) or fluorescein (sc-53782 FITC), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM.

STORAGE

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

APPLICATIONS

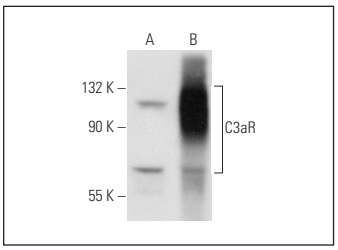
C3aR (17) is recommended for detection of C3aR of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x 10^6 cells).

Suitable for use as control antibody for C3aR siRNA (h): sc-42840, C3aR shRNA Plasmid (h): sc-42840-SH and C3aR shRNA (h) Lentiviral Particles: sc-42840-V.

Molecular Weight of C3aR: 65 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200 or C3aR (h): 293T Lysate: sc-173073.

DATA



C3aR (17): sc-53782. Western blot analysis of C3aR expression in non-transfected: sc-117752 (**A**) and human C3aR transfected: sc-173073 (**B**) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Luchini, L.S.G., et al. 2019. Complement system inhibition modulates the pro-inflammatory effects of a snake venom metalloproteinase. Front. Immunol. 10: 1137.
2. Gonçalves, M.T., et al. 2020. P-MAPA, a fungi-derived immunomodulatory compound, induces a proinflammatory response in a human whole blood model. Mediators Inflamm. 2020: 8831389.
3. Ishii, M., et al. 2021. Mitochondrial C3a receptor activation in oxidatively stressed epithelial cells reduces mitochondrial respiration and metabolism. Front. Immunol. 12: 628062.
4. Magrini, E., et al. 2021. Complement activation promoted by the lectin pathway mediates C3aR-dependent sarcoma progression and immunosuppression. Nat. Cancer 2: 218-232.

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.