SANTA CRUZ BIOTECHNOLOGY, INC.

C5a (2952): sc-52634

BACKGROUND

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. C5aR utilizes the Ras-Raf-ERK1/2 cascade, couples to G_i/G_{16} proteins, and 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. The C5 precursor is first processed by the removal of 4 basic residues, forming two chains, α and β, linked by a disulfide bond. C5 convertase activates C5 by cleaving the α chain, releasing C5α anaphylatoxin and generating C5β.

REFERENCES

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2. Buhl, A.M., Osawa, S. and Johnson, G.L. 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., Frei, K., Eugster, H.P., Fontana, A., Hummel, K.M., Wetsel, R.A., Ames, R.S. and Barnum, S.R. 1997. TNF-α-mediated expression of the receptor for anaphylatoxin C5a on neurons in experimental *Listeria* meningoencephalitis. J. Immunol. 159: 861-869.
4. Langkabel, P., Zwirner, J. and Oppermann, M. 1999. Ligand-induced phosphorylation of anaphylatoxin receptors C3aR and C5aR is mediated by G protein-coupled receptor kinases. Eur. J. Immunol. 29: 3035-3046.
5. Settmacher, B., Bock, D., Saad, H., Gartner, S., Rheinheimer, C., Kohl, J., Bautsch, W. and Klos, A. 1999. Modulation of C3a activity: internalization of the human C3a receptor and its inhibition by C5a. J. Immunol. 162: 7409-7416.
6. Humbles, A.A., Lu, B., Nilsson, C.A., Lilly, C., Israel, E., Fujiwara, Y., Gerard, N.P. and Gerard, C. 2000. A role for the C3a anaphylatoxin receptor in the effector phase of asthma. Nature 406: 998-1001.

CHROMOSOMAL LOCATION

Genetic locus: C5 (human) mapping to 9q33.2.

SOURCE

C5a (2952) is a mouse monoclonal antibody raised against C5a of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

C5a (2952) is recommended for detection of a neo-epitope (des-Arg) on C5a that is formed upon cleavage of C5 into C5a and C5b of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000).

Suitable for use as control antibody for C5 siRNA (h): sc-42848, C5 shRNA Plasmid (h): sc-42848-SH and C5 shRNA (h) Lentiviral Particles: sc-42848-V.

Molecular Weight of C5 precursor: 188 kDa.

Molecular Weight of C5a: 9 kDa.

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

SELECT PRODUCT CITATIONS

1. Melgaço, J.G., Veloso, C.E., Pacheco-Moreira, L.F., Vitral, C.L. and Pinto, M.A. 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.

STORAGE

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

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.