SANTA CRUZ BIOTECHNOLOGY, INC.

C5α (P-16): sc-21944

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

C3α, C4α and C5α 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. Complement C5 precursor contains C5α anaphylatoxin. C3α and C5α secretion correlates with pathophysiological phenotypes such as asthma and bacterial meningitis. Binding of these proteins to their respective G protein-coupled receptors (C3αR, C5αR), 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. C5αR 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, C3αR and C5αR are susceptible to rapid GRK-mediated phosphorylation and Clathrin-coated vesicle targeting. The C5 precursor is first processed by the removal of four basic residues, forming two chains, β and α, linked by a disulfide bond. C5 convertase activates C5 by cleaving the α chain, releasing C5α anaphylatoxin and generating C5β.

REFERENCES

1. de Bruijn, M.H. and Fey, G.H. 1985. Human complement component C3: cDNA coding sequence and derived primary structure. Proc. Natl. Acad. Sci. USA 82: 708-712.
2. Buhl, A.M., Osawa, S. and Johnson, G.L. 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., Frei, K., Eugster, H.P., Fontana, A., Hummel, K.M., Wetsel, R.A., Ames, R.S. and Barnum, S.R. 1997. TNFα-mediated expression of the receptor for anaphylatoxin C5α 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 C3αR and C5αR 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 C3α activity: internalization of the human C3α receptor and its inhibition by C5α. J. Immunol. 162: 7409-7416.

CHROMOSOMAL LOCATION

Genetic locus: C5 (human) mapping to 9q33.2; Hc (mouse) mapping to 2 B.

SOURCE

C5α (P-16) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of C5 of mouse 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-21944 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

C5α (P-16) is recommended for detection of C5 precursor, C5α chain and C5α' chain of mouse, rat and, to a lesser extent, 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for C5 siRNA (h): sc-42848, C5 siRNA (m): sc-42849, C5 shRNA Plasmid (h): sc-42848-SH, C5 shRNA Plasmid (m): sc-42849-SH, C5 shRNA (h) Lentiviral Particles: sc-42848-V and C5 shRNA (m) Lentiviral Particles: sc-42849-V.

Molecular Weight of C5 precursor: 188 kDa.

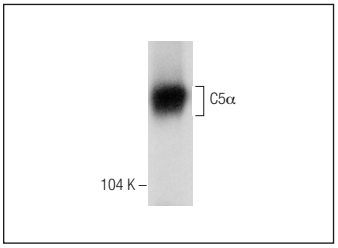
Molecular Weight of C5α: 125 kDa.

Positive Controls: rat plasma whole cell lysate.

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) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) 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.

DATA



C5α (P-16): sc-21944. Western blot analysis of C5α expression in rat plasma.

RESEARCH USE

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