SANTA CRUZ BIOTECHNOLOGY, INC.

Activated C3 (I3/15): sc-47687

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. C3 contains an α and a β chain. The α chain is converted to the α'-chain upon C3 activation, and this is recognized by I3/15.

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. Oppermann, M., et al. 1990. Quantitation of components of the alternative pathway of complement (APC) by enzyme-linked immunosorbent assays. J. Immunol. Methods 133: 181-190.
3. Würzner, R., et al. 1991. Complement activation and depletion during LDL-apheresis by heparin-induced extracorporeal LDL-precipitation (HELP). Eur. J. Clin. Invest. 21: 288-294.
4. Oppermann, M., et al. 1992. Elevated plasma levels of the immunosuppressive complement fragment Ba in renal failure. Kidney Int. 40: 939-947.
5. Oppermann, M., et al. 1993. Assessment of complement activation *in vivo*. Immunopharmacology 24: 119-134.
6. 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.

CHROMOSOMAL LOCATION

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

SOURCE

Activated C3 (I3/15) is a mouse monoclonal antibody raised against complement protein factor C3dg 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.

APPLICATIONS

Activated C3 (I3/15) is recommended for detection of the precursor proteins C3b and iC3b as well as C3dg and the 105 kDa fragment of C3b (designated C3α) of human origin by Western Blotting (starting dilution 1:100, dilution range) and immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)]; non cross-reactive with C3a and C3β.

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 Activated C3: 115 kDa.

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

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).

SELECT PRODUCT CITATIONS

1. Li, R.W., et al. 2010. Localized complement activation in the development of protective immunity against *Ostertagia ostertagi* infections in cattle. Vet. Parasitol. 174: 247-256.
2. Hill, P.J., et al. 2017. Modifications of *Pseudomonas aeruginosa* cell envelope in the cystic fibrosis airway alters interactions with immune cells. Sci. Rep. 7: 4761.
3. Zhou, J., et al. 2022. Role of surface charge of nanoscale ultrasound contrast agents in complement activation and phagocytosis. Int. J. Nanomedicine 17: 5933-5946.

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.

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.