SANTA CRUZ BIOTECHNOLOGY, INC.

C3 (C-4): sc-25298

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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-ERK 1/2 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. Langkabel, P., et al. 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., 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: C3 (human) mapping to 19p13.3.

SOURCE

C3 (C-4) is a mouse monoclonal antibody raised against amino acids 541-840 of C3 of human origin.

PRODUCT

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

STORAGE

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

APPLICATIONS

C3 (C-4) is recommended for detection of C3 precursor, C3a anaphylatoxin, C3 α chain, C3 β chain and C3b α' chain 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 solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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.

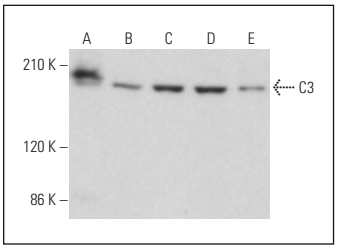
Molecular Weight of C3: 180 kDa.

Positive Controls: HL-60 whole cell lysate: sc-2209, COLO 205 whole cell lysate: sc-364177 or Hep G2 cell lysate: sc-2227.

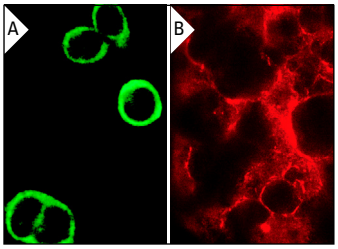
RECOMMENDED SUPPORT REAGENTS

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). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



C3 (C-4): sc-25298. Western blot analysis of C3 expression in Hep G2 (**A**), HL-60 (**B**), COLO 205 (**C**), AN3 CA (**D**) and ES-2 (**E**) whole cell lysates.



C3 (C-4): sc-25298. Immunofluorescence staining of methanol-fixed U-937 cells (**A**) and HeLa cells (**B**) showing cytoplasmic localization.

SELECT PRODUCT CITATIONS

1. Lee, D.H., et al. 2019. Identification of serum biomarkers for premature ovarian failure. Biochim. Biophys. Acta Proteins Proteom. 1867: 219-226.

RESEARCH USE

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

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.