

C5 (561): sc-52636

BACKGROUND

C3 α , C4 α and C5 α 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 C5 α anaphylatoxin. C3 α and C5 α secretion correlates with pathophysiological phenotypes such as asthma and bacterial meningitis. Binding of these proteins to their respective G protein-coupled receptors (C3 α R, C5 α R), 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. C5 α R utilizes the Ras-Raf-ERK1/2 cascade, couples to G α /G β proteins, and is prevalent on the surface of hepatocyte, lung, smooth muscle and endothelial cells. Upon activation, C3 α R and C5 α R 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, α and β , linked by a disulfide bond. C5 convertase activates C5 by cleaving the α chain, releasing C5 α anaphylatoxin and generating C5 β .

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., 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.
6. Humbles, A.A., et al. 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

C5 (561) is a mouse monoclonal antibody raised against the N-terminus of C5 of human origin.

PRODUCT

Each vial contains 100 μ g IgG_{2a} in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

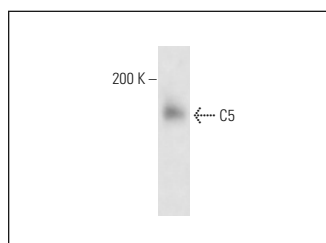
C5 (561) is recommended for detection of the N-terminus of C5, intact C5 and C5a of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)].

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: 190 kDa.

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

DATA



C5 (561): sc-52636. Western blot analysis of C5 expression in Hep G2 whole cell lysate.

SELECT PRODUCT CITATIONS

1. Porte, B., et al. 2017. Major remodeling of brain microvessels during neonatal period in the mouse: a proteomic and transcriptomic study. *J. Cereb. Blood Flow Metab.* 37: 495-513.
2. Linetsky, M., et al. 2018. 4-hydroxy-7-oxo-5-heptenoic acid lactone is a potent inducer of the complement pathway in human retinal pigmented epithelial cells. *Chem. Res. Toxicol.* 31: 666-679.
3. Wen, Y., et al. 2021. Role of C5a and C5aR in doxorubicin-induced cardiomyocyte senescence. *Exp. Ther. Med.* 22: 1114.

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.