

# C3 (B-9): sc-28294

## BACKGROUND

Complement C3 precursor contains complement C3  $\beta$  chain, complement C3  $\alpha$  chain, C3a anaphylatoxin, complement C3b  $\alpha$  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<sub>i</sub>/G<sub>16</sub> 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.

## CHROMOSOMAL LOCATION

Genetic locus: C3 (human) mapping to 19p13.3; C3 (mouse) mapping to 17 D.

## SOURCE

C3 (B-9) is a mouse monoclonal antibody raised against amino acids 541-840 of C3 precursor of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>1</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

C3 (B-9) is available conjugated to agarose (sc-28294 AC), 500  $\mu$ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-28294 HRP), 200  $\mu$ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-28294 PE), fluorescein (sc-28294 FITC), Alexa Fluor<sup>®</sup> 488 (sc-28294 AF488), Alexa Fluor<sup>®</sup> 546 (sc-28294 AF546), Alexa Fluor<sup>®</sup> 594 (sc-28294 AF594) or Alexa Fluor<sup>®</sup> 647 (sc-28294 AF647), 200  $\mu$ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor<sup>®</sup> 680 (sc-28294 AF680) or Alexa Fluor<sup>®</sup> 790 (sc-28294 AF790), 200  $\mu$ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

## STORAGE

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

## APPLICATIONS

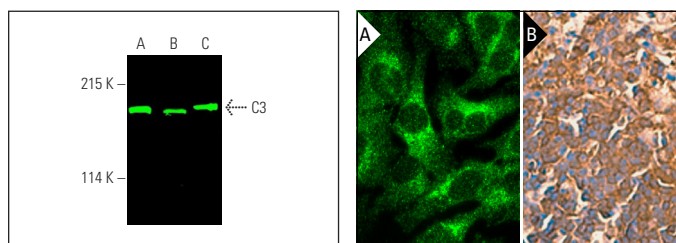
C3 (B-9) is recommended for detection of C3 precursor, C3a anaphylatoxin, C3  $\alpha$  chain, C3  $\beta$  chain and C3b  $\alpha'$  chain of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (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 siRNA (m): sc-37069, C3 shRNA Plasmid (h): sc-37068-SH, C3 shRNA Plasmid (m): sc-37069-SH, C3 shRNA (h) Lentiviral Particles: sc-37068-V and C3 shRNA (m) Lentiviral Particles: sc-37069-V.

Molecular Weight of C3: 180 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, HeLa whole cell lysate: sc-2200 or human liver extract: sc-363766.

## DATA



C3 (B-9) Alexa Fluor<sup>®</sup> 680: sc-28294 AF680. Direct near-infrared western blot analysis of C3 expression in Hep G2 (A) and HeLa (B) whole cell lysates and human liver tissue extract (C). Blocked with UltraCruz<sup>®</sup> Blocking Reagent: sc-516214.

C3 (B-9): sc-28294. Immunofluorescence staining of formalin-fixed Hep G2 cells showing cytoplasmic localization (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse spleen tissue showing cytoplasmic localization (B).

## SELECT PRODUCT CITATIONS

1. Capano, M., et al. 2002. Biphasic translocation of Bax to mitochondria. *Biochem. J.* 367: 169-178.
2. Schlegel, G., et al. 2016. Phenylketonuria: direct and indirect effects of phenylalanine. *Exp. Neurol.* 281: 28-36.
3. Kumar, S., et al. 2017. Proteolytic degradation and inflammation play critical roles in polypoidal choroidal vasculopathy. *Am. J. Pathol.* 187: 2841-2857.
4. Okamoto, T., et al. 2018. The relationship between complement C3 expression and the MUC5B genotype in pulmonary fibrosis. *Am. J. Physiol. Lung Cell. Mol. Physiol.* 315: L1-L10.
5. Zhao, P., et al. 2019. The imbalance in the complement system and its possible physiological mechanisms in patients with lung cancer. *BMC Cancer* 19: 201.

## RESEARCH USE

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

Alexa Fluor<sup>®</sup> is a trademark of Molecular Probes, Inc., Oregon, USA