SANTA CRUZ BIOTECHNOLOGY, INC.

C4 (16D2): sc-58930

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The complement component proteins C3, C4 and C5 are potent anaphylatoxins that are released during complement activation, a system of ligand-surface protein interactions specific to cells of hematopoietic lineage. These proteins belong to the α2-macroglobulin family, but retain distinctive features including an anaphylatoxin domain and a netrin (NTR) domain. The human C4 gene is polymorphic at two loci, C4A and C4B, mapping to chromosome 6p21.32. C4A expresses the Rodgers (Rg) blood group Ag, while C4B expresses the Chido (Ch) blood group Ag. C4 is expressed as a precursor that is cleaved into α, β and γ chains, all of which are non-identical cleavage products. The α chain of C4 may be cleaved to produce an acidic isotype, C4a, which reacts with amino groups, and a basic isotype, C4b, which reacts with hydroxyl groups. Deficiency in the C4 gene is associated with autoimmune or immune complex disorders, such as systemic lupus erythematosus.

REFERENCES

1. Hugli, T.E. 1984. Structure and function of the anaphylatoxins. Springer Semin. Immunopathol. 7: 193-219.
2. Yu, C.Y., et al. 1986. Structural basis of the polymorphism of human complement components C4A and C4B: gene size, reactivity and antigenicity. EMBO J. 5: 2873-2881.
3. Andoh, A., et al. 1997. Molecular characterization of complement components (C3, C4 and factor B) in human saliva. J. Clin. Immunol. 17: 404-407.
4. Martinez, O.P., et al. 2001. Genetics of human complement component C4 and evolution the central MHC. Front. Biosci. 6: D904-D913.
5. Blanchong, C.A., et al. 2001. Genetic, structural and functional diversities of human complement components C4A and C4B and their mouse homologs, Slp and C4. Int. Immunopharmacol. 1: 365-392.
6. Jaatinen, T., et al. 2002. Characterization of a *de novo* conversion in human complement C4 gene producing a C4B5-like protein. J. Immunol. 168: 5652-5658.
7. Rupert, K.L., et al. 2002. The molecular basis of complete complement C4A and C4B deficiencies in a systemic lupus erythematosus patient with homozygous C4A and C4B mutant genes. J. Immunol. 169: 1570-1578.

CHROMOSOMAL LOCATION

Genetic locus: C4a/C4b (mouse) mapping to 17 B1.

SOURCE

C4 (16D2) is a rat monoclonal antibody raised against cell-bound C4 of mouse origin.

PRODUCT

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

C4 (16D2) is available conjugated to either phycoerythrin (sc-58930 PE) or fluorescein (sc-58930 FITC), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM.

APPLICATIONS

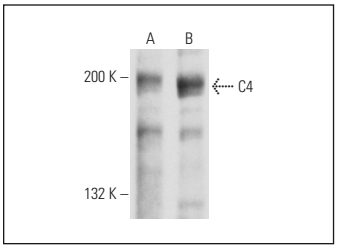
C4 (16D2) is recommended for detection of C4 of mouse origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x 10^6 cells); may cross-react with C4b and C4d.

Suitable for use as control antibody for C4 siRNA (m): sc-42845, C4 shRNA Plasmid (m): sc-42845-SH and C4 shRNA (m) Lentiviral Particles: sc-42845-V.

Molecular Weight of C4: 193 kDa.

Positive Controls: J774.A1 cell lysate: sc-3802 or mouse PBL whole cell lysate.

DATA



C4 (16D2): sc-58930. Western blot analysis of C4 expression in J774.A1 (**A**) and mouse PBL (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Fan, W., et al. 2010. Early involvement of immune/inflammatory response genes in retinal degeneration in DBA/2J mice. Ophthalmol. Eye Dis. 1: 23-41.
2. Tsai, I.J., et al. 2015. Inhibition of Rho-associated kinase relieves C5a-induced proteinuria in murine nephrotic syndrome. Cell. Mol. Life Sci. 72: 3157-3171.
3. Mukherjee, S., et al. 2020. Alcohol increases exosome release from microglia to promote complement C1q induced cellular death of proopiomelanocortin neurons in the hypothalamus in a rat model of fetal alcohol spectrum disorders. J. Neurosci. 40: 7965-7979.
4. Escamilla-Rivera, V., et al. 2021. Complement plays a critical role in inflammation-induced immunoprophylaxis failure in mice. Front. Immunol. 12: 704072.

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.