SANTA CRUZ BIOTECHNOLOGY, INC.

C3d (003-05): sc-58928

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The complement component proteins, C2, C3, C4 and C5, are potent anaphylatoxins that are released during complement activation. Binding of these proteins to their respective G protein-coupled receptors, C3aR, C1R and C5aR, induces proinflammatory events, such as cellular degranulation, smooth muscle contraction, arachidonic acid metabolism, cytokine release, leukocyte activation and cellular chemotaxis. C3d is a terminal degradation product of C3 that plays an important role in modulation of the adaptive immune response through the interaction with complement receptor type 2 (CR2). CR2 is important in the switched-isotype, high-affinity and memory humoral immune responses to T-dependent foreign antigens, as well as in the development of the natural antibody repertoire. This pH- and ionic strength-dependent association of C3d with CR2 represents a link between innate and adaptive immunity.

REFERENCES

1. Nagar, B., et al. 1998. X-ray crystal structure of C3d: a C3 fragment and ligand for complement receptor 2. Science 280: 1277-1281.
2. Clemenza, L., et al. 2000. Structure-guided identification of C3d residues essential for its binding to complement receptor 2 (CD21). J. Immunol. 165: 3839-3848.
3. Szakonyi, G., et al. 2001. Structure of complement receptor 2 in complex with its C3d ligand. Science 292: 1725-1728.
4. Gerl, V.B., et al. 2002. Extensive deposits of complement C3d and C5b-9 in the choriocapillaris of eyes of patients with diabetic retinopathy. Invest. Ophthalmol. Vis. Sci. 43: 1104-1108.
5. Morikis, D., et al. 2004. The electrostatic nature of C3d-complement receptor 2 association. J. Immunol. 172: 7537-7547.
6. Nakao, M., et al. 2004. A complement C3 fragment equivalent to mammalian C3d from the common carp *(Cyprinus carpio):* generation in serum after activation of the alternative pathway and detection of its receptor on the lymphocyte surface. Fish Shellfish Immunol. 16: 139-149.
7. Boackle, R.J., et al. 2005. Complement-coated antibody-transfer (CCAT); serum IgA_1 antibodies intercept and transport C4 and C3 fragments and preserve IgG_1 deployment (PGD). Mol. Immunol. 43: 236-245.
8. Hannan, J.P., et al. 2005. Mutational analysis of the CR2 (CR2/CD21)-C3d interaction reveals a putative charged SCR1 binding site for C3d. J. Mol. Biol. 346: 845-858.
9. Holers, V.M. 2005. Complement receptors and the shaping of the natural antibody repertoire. Springer Semin. Immunopathol. 26: 405-423.

CHROMOSOMAL LOCATION

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

SOURCE

C3d (003-05) is a mouse monoclonal antibody raised against full length native C3 of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

C3d (003-05) is recommended for detection of C3d 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

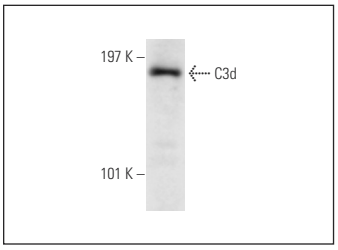
Molecular Weight of C3d: 35 kDa.

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

RECOMMENDED SECONDARY 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).

DATA



C3d (003-05): sc-58928. Western blot analysis of C3d expression in Hep G2 whole cell lysate.

SELECT PRODUCT CITATIONS

1. Woehl, J.L., et al. 2017. The structural basis for inhibition of the classical and lectin complement pathways by *S. aureus* extracellular adherence protein. Protein Sci. 26: 1595-1608.
2. Tradtrantip, L., et al. 2019. CD55 upregulation in astrocytes by statins as potential therapy for AQP4-IgG seropositive neuromyelitis optica. J. Neuroinflammation 16: 57.

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.