

C4 $\beta$  (D-12): sc-74524

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  $\alpha_2$ -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 6p21.33. 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  $\alpha$ ,  $\beta$  and  $\gamma$  chains, all of which are non-identical cleavage products. The  $\alpha$  chain of C4 may be cleaved to produce an acidic isotype, C4 $\alpha$ , which reacts with amino groups, and a basic isotype, C4 $\beta$ , which reacts with hydroxyl groups. Deficiency in the C4 gene is associated with autoimmune or immune complex disorders, such as systemic lupus erythematosus.

## REFERENCES

- Hugli, T.E. 1984. Structure and function of the anaphylatoxins. Springer Semin. Immunopathol. 7: 193-219.
- 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.
- Andoh, A., et al. 1997. Molecular characterization of complement components (C3, C4 and factor B) in human saliva. J. Clin. Immunol. 17: 404-407.
- Martinez, O.P., et al. 2001. Genetics of human complement component C4 and evolution the central MHC. Front. Biosci. 6: D904-D913.
- 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.
- 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.
- 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 (human) mapping to 6p21.33; C4b (mouse) mapping to 17 B1.

## SOURCE

C4 $\beta$  (D-12) is a mouse monoclonal antibody raised against amino acids 376-675 of C4 of human origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG<sub>2a</sub> kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## RESEARCH USE

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

## APPLICATIONS

C4 $\beta$  (D-12) is recommended for detection of C4 precursor and C4  $\beta$  chain of mouse, rat and human origin by Western Blotting (starting dilution 1:100, 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for C4 siRNA (h): sc-42844, C4 siRNA (m): sc-42845, C4 shRNA Plasmid (h): sc-42844-SH, C4 shRNA Plasmid (m): sc-42845-SH, C4 shRNA (h) Lentiviral Particles: sc-42844-V and C4 shRNA (m) Lentiviral Particles: sc-42845-V.

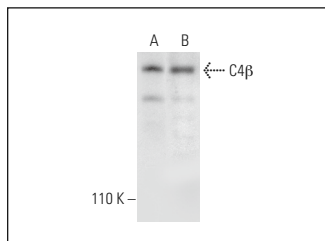
Molecular Weight of C4 $\beta$ : 73 kDa.

Positive Controls: mouse liver extract: sc-2256, Hep G2 cell lysate: sc-2227 or human liver extract: sc-363766.

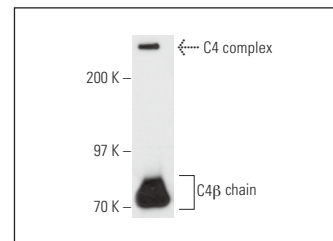
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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



C4 $\beta$  (D-12): sc-74524. Western blot analysis of C4 $\beta$  expression in Hep G2 whole cell lysate (A) and human liver tissue extract (B).



C4 $\beta$  (D-12): sc-74524. Western blot analysis of C4 $\beta$  expression in purified human C4 complex.

## SELECT PRODUCT CITATIONS

- Moliva, J.I., et al. 2014. Molecular composition of the alveolar lining fluid in the aging lung. Age 36: 9633.
- Shahulhameed, S., et al. 2020. A systematic investigation on complement pathway activation in diabetic retinopathy. Front. Immunol. 11: 154.

## STORAGE

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