



## CRBP IV (N-15): sc-103441

### BACKGROUND

The cellular retinol-binding proteins (CRBP I, II, III and IV) belong to a superfamily of small cytoplasmic proteins which interact with hydrophobic ligands. Vitamin A, a molecule essential for cell growth and differentiation, embryonic development and vision, is transported into the cell by the CRBPs in its alcoholic form, called retinol. Both CRBP I and II are composed of ten antiparallel  $\beta$ -strands, which form a  $\beta$ -barrel that contains the retinol molecule, and two  $\alpha$ -helices, which cover the open ends of the barrel. CRBP I mediates the cellular uptake of retinol, solubilizes and detoxifies it for further transport within the cytoplasm, and presents it to the appropriate enzymes to biosynthesize retinoic acid, an active form of retinol or retinyl esters, which are stored. CRBP I is expressed in human ovary, adrenal and pituitary glands, and testis, and its expression is modulated by TGF $\beta$ . CRBP II is expressed solely in the small intestine and mediates the absorption of retinoids and carotenoids to biosynthesize retinyl esters. CRBP III and CRBP IV are cytoplasmic proteins that, like CRBP I and CRBP II, form  $\beta$ -barrel structures and participate in the intracellular transport of retinol.

### REFERENCES

- Ong, D.E. and Page, D.L. 1986. Quantitation of cellular retinol-binding protein in human organs. *Am. J. Clin. Nutr.* 44: 425-430.
- Cowan, S.W., Newcomer, M.E. and Jones, T.A. 1993. Crystallographic studies on a family of cellular lipophilic transport proteins. Refinement of P2 myelin protein and the structure determination and refinement of cellular retinol-binding protein in complex with all-*trans*-retinol. *J. Mol. Biol.* 230: 1225-1246.
- Winter, N.S., Bratt, J.M. and Banaszak, L.J. 1993. Crystal structures of holo- and apo-cellular retinol-binding protein II. *J. Mol. Biol.* 230: 1247-1259.
- Okuno, M., Numaguchi, S., Moriwaki, H. and Muto, Y. 1993. Cellular retinoid-binding proteins. *Nippon Rinsho* 51: 879-885.
- Takase, S., Suruga, K. and Goda, T. 2000. Regulation of vitamin A metabolism-related gene expression. *Br. J. Nutr.* 84 Suppl 2: S217-S221.
- Xu, G., Bochaton-Piallat, M.L., Andreatti, D., Low, R.B., Gabbiani, G. and Neuville, P. 2001. Regulation of  $\alpha$ -smooth muscle Actin and CRBP I expression by retinoic acid and TGF $\beta$  in cultured fibroblasts. *J. Cell. Physiol.* 187: 315-325.
- Folli, C., Calderone, V., Ottonello, S., Bolchi, A., Zanotti, G., Stoppini, M. and Berni, R. 2001. Identification, retinoid binding and x-ray analysis of a human retinol-binding protein. *Proc. Natl. Acad. Sci. USA* 98: 3710-3715.

### CHROMOSOMAL LOCATION

Genetic locus: RBP7 (human) mapping to 1p36.22; Rbp7 (mouse) mapping to 4 E2.

### SOURCE

CRBP IV (N-15) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the N-terminus of CRBP IV of human origin.

### PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-103441 P, (100  $\mu$ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

### APPLICATIONS

CRBP IV (N-15) is recommended for detection of CRBP IV of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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); non cross-reactive with family members CRBP I, CRBP II or CRBP III.

Suitable for use as control antibody for CRBP IV siRNA (h): sc-88028, CRBP IV siRNA (m): sc-105244, CRBP IV shRNA Plasmid (h): sc-88028-SH, CRBP IV shRNA Plasmid (m): sc-105244-SH, CRBP IV shRNA (h) Lentiviral Particles: sc-88028-V and CRBP IV shRNA (m) Lentiviral Particles: sc-105244-V.

### RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

### 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](http://www.scbt.com) or our catalog for detailed protocols and support products.