SANTA CRUZ BIOTECHNOLOGY, INC.

CRBP I siRNA (h): sc-43699

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 β-strands, which form a β-barrel that contains the retinol molecule, and two α-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 TGFβ. 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 β-barrel structures and participate in the intracellular transport of retinol.

REFERENCES

1. Ong, D.E. and Page, D.L. 1986. Quantitation of cellular retinol-binding protein in human organs. Am. J. Clin. Nutr. 44: 425-430.
2. Cowan, S.W., et al. 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.
3. Winter, N.S., et al. 1993. Crystal structures of holo- and apo-cellular retinol-binding protein II. J. Mol. Biol. 230: 1247-1259.
4. Okuno, M., et al. 1993. Cellular retinoid-binding proteins. Nippon Rinsho 51: 879-885.
5. Takase, S., et al. 2000. Regulation of vitamin A metabolism-related gene expression. Br. J. Nutr. 84: S217-S221.
6. Folli, C., et al. 2001. Identification, retinoid binding and x-ray analysis of a human retinol-binding protein. Proc. Natl. Acad. Sci. USA 98: 3710-3715.
7. Kuppumbatti, Y.S., et al. 2001. CRBP suppresses breast cancer cell survival and anchorage-independent growth. Oncogene 20: 7413-7419.

CHROMOSOMAL LOCATION

Genetic locus: RBP1 (human) mapping to 3q23.

PRODUCT

CRBP I siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see CRBP I shRNA Plasmid (h): sc-43699-SH and CRBP I shRNA (h) Lentiviral Particles: sc-43699-V as alternate gene silencing products.

For independent verification of CRBP I (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-43699A, sc-43699B and sc-43699C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

CRBP I siRNA (h) is recommended for the inhibition of CRBP I expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

CRBP I (B-8): sc-271208 is recommended as a control antibody for monitoring of CRBP I gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

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) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor CRBP I gene expression knockdown using RT-PCR Primer: CRBP I (h)-PR: sc-43699-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.