

DBP siRNA (h): sc-41375

BACKGROUND

Vitamin D-binding protein (DBP) is a multi-functional serum protein that binds to the plasma membranes of numerous cell types and mediates a variety of cellular functions. The locus of the DBP protein (also known as group-specific component protein or GC) is located at human chromosome 4q13.3. DBP functions in organ-specific transportation of vitamin D and its metabolites to the various target organs of the vitamin D endocrine system. In addition, DBP has immunomodulatory properties and is able to bind to the surface of leukocytes. DBP binds to the plasma membrane through a chondroitin sulfate proteoglycan. DBP serves as a co-chemotactic factor for C5a to enhance the chemotactic activity of C5a. DBP can also bind to globular Actin with high affinity and is involved in the clearance of Actin from the blood. DBP plays an important role in osteoclast differentiation. The diverse cellular functions of DBP require its cell surface binding ability to mediate different biological processes.

REFERENCES

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- Papiha, S.S., et al. 1999. Vitamin D binding protein gene in male osteoporosis: association of plasma DBP and bone mineral density with (TAAA)(n)-Alu polymorphism in DBP. *Calcif. Tissue Int.* 65: 262-266.
- Hirai, M., et al. 2000. Variations in vitamin D-binding protein (group-specific component protein) are associated with fasting plasma Insulin levels in Japanese with normal glucose tolerance. *J. Clin. Endocrinol. Metab.* 85: 1951-1953.
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- Swamy, N., et al. 2001. Baculovirus-expressed vitamin D-binding protein-macrophage activating factor (DBP-maf) activates osteoclasts and binding of 25-hydroxyvitamin D₃ does not influence this activity. *J. Cell. Biochem.* 81: 535-546.

CHROMOSOMAL LOCATION

Genetic locus: GC (human) mapping to 4q13.3.

PRODUCT

DBP 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see DBP shRNA Plasmid (h): sc-41375-SH and DBP shRNA (h) Lentiviral Particles: sc-41375-V as alternate gene silencing products.

For independent verification of DBP (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-41375A, sc-41375B and sc-41375C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

DBP siRNA (h) is recommended for the inhibition of DBP 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 μ M in 66 μ l. 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

DBP (A-5): sc-365441 is recommended as a control antibody for monitoring of DBP 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 DBP gene expression knockdown using RT-PCR Primer: DBP (h)-PR: sc-41375-PR (20 μ l). 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.