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# Drebrin shRNA (h) Lentiviral Particles: sc-43731-V

## BACKGROUND

Drebrins (developmentally regulated brain proteins) are cytoplasmic proteins that bind F-Actin in the brain and are involved in cell migration, extension of neuronal processes and plasticity of dendrites. There are three isoforms: two embryonic types (E1 and E2); and an adult type (A), generated by alternative RNA splicing from a single Drebrin gene. Drebrins are expressed mainly in brain neurons but are also found in skeletal muscle, heart, placenta, pancreas and kidney. Drebrin has been designated as a marker of the dendritic spine. Decreases in Drebrin levels in the brain have been associated with Alzheimer's disease and Down syndrome. The gene encoding the human Drebrin protein is located on human chromosome 5.

## REFERENCES

1. Shirao, T. 1995. The roles of microfilament-associated proteins, drebrins, in brain morphogenesis: a review. *J. Biochem.* 117: 231-236.
2. Hayashi, K., et al. 1996. Modulatory role of Drebrin on the cytoskeleton within dendritic spines in the rat cerebral cortex. *J. Neurosci.* 16: 7161-7170.
3. Hayashi, K., et al. 1999. Change in the shape of dendritic spines caused by overexpression of Drebrin in cultured cortical neurons. *J. Neurosci.* 19: 3918-3925.
4. Peitsch, W.K., et al. 1999. Drebrin is a widespread Actin-associating protein enriched at junctional plaques, defining a specific microfilament anchorage system in polar epithelial cells. *Eur. J. Cell Biol.* 78: 767-778.
5. Shim, K.S., et al. 2002. Drebrin, a dendritic spine protein, is manifold decreased in brains of patients with Alzheimer's disease and Down syndrome. *Neurosci. Lett.* 324: 209-212.
6. SWISS-PROT/TrEMBL (Q16643). World Wide Web URL: <http://www.expasy.ch/sprot/sprot-top.html>

## CHROMOSOMAL LOCATION

Genetic locus: DBN1 (human) mapping to 5q35.3.

## PRODUCT

Drebrin shRNA (h) Lentiviral Particles are concentrated, transductionready viral particles containing a target-specific construct that encodes a 19-25 nt (plus hairpin) shRNA designed to knock down gene expression. Each vial contains 200  $\mu$ l frozen stock containing  $1.0 \times 10^6$  infectious units of virus (IFU) in Dulbecco's Modified Eagle's Medium with 25 mM HEPES pH 7.3. Suitable for 10-20 transductions. Also see Drebrin siRNA (h): sc-43731 and Drebrin shRNA Plasmid (h): sc-43731-SH as alternate gene silencing products.

## STORAGE

Store lentiviral particles at  $-80^\circ$  C. Stable for at least one year from the date of shipment. Once thawed, particles can be stored at  $4^\circ$  C for up to one week. Avoid repeated freeze thaw cycles.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.

## APPLICATIONS

Drebrin shRNA (h) Lentiviral Particles is recommended for the inhibition of Drebrin expression in human cells.

## SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200  $\mu$ l frozen viral stock containing  $1.0 \times 10^6$  infectious units of virus (IFU); contains an shRNA construct encoding a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA.

## GENE EXPRESSION MONITORING

Drebrin (B-6): sc-393097 is recommended as a control antibody for monitoring of Drebrin 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 (secondary) reagents are recommended: 1) Western Blotting: use goat anti-mouse IgG-HRP: sc-2005 (dilution range: 1:2000-1:32,000) or Cruz Marker™ compatible goat anti-mouse IgG-HRP: sc-2031 (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 goat anti-mouse IgG-FITC: sc-2010 (dilution range: 1:100-1:400) or goat anti-mouse IgG-TR: sc-2781 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Drebrin gene expression knockdown using RT-PCR Primer: Drebrin (h)-PR: sc-43731-PR (20  $\mu$ l). Annealing temperature for the primers should be  $55-60^\circ$  C and the extension temperature should be  $68-72^\circ$  C.

## BIOSAFETY

Lentiviral particles can be employed in standard Biosafety Level 2 tissue culture facilities (and should be treated with the same level of caution as with any other potentially infectious reagent). Lentiviral particles are replication-incompetent and are designed to self-inactivate after transduction and integration of shRNA constructs into genomic DNA of target cells.

## RESEARCH USE

The purchase of this product conveys to the buyer the nontransferable right to use the purchased amount of the product and all replicates and derivatives for research purposes conducted by the buyer in his laboratory only (whether the buyer is an academic or for-profit entity). The buyer cannot sell or otherwise transfer (a) this product (b) its components or (c) materials made using this product or its components to a third party, or otherwise use this product or its components or materials made using this product or its components for Commercial Purposes.