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# VDUP1 shRNA (h) Lentiviral Particles: sc-44943-V

## BACKGROUND

The gene encoding vitamin D<sub>3</sub> upregulated protein 1 (VDUP1) is upregulated by 1,25(OH)<sub>2</sub>D<sub>3</sub> in response to various stresses, including ROS, UV and heat shock. The transcription factor HSF may be involved in this regulation. VDUP1 also functions as a natural antagonist of TRX and displays tumor-suppressive activity by inducing cell cycle arrest at the G<sub>0</sub>/G<sub>1</sub> phase. The presence of VDUP1 is required for CD122 expression and natural killer (NK) cell maturation, but its effect is minimal during the development of T and B cells. The gene encoding human VDUP1 maps to chromosome 1q21.1, and its protein product shows ubiquitous expression in various tissues and localizes to the cytoplasm. VDUP1 may also be a useful therapeutic target for melanoma.

## REFERENCES

- Chen, K.S., et al. 1994. Isolation and characterization of a novel cDNA from HL-60 cells treated with 1,25-dihydroxyvitamin D<sub>3</sub>. *Biochim. Biophys. Acta* 1219: 26-32.
- Nishiyama, A., et al. 1999. Identification of thioredoxin-binding protein-2/vitamin D<sub>3</sub> upregulated protein 1 as a negative regulator of thioredoxin function and expression. *J. Biol. Chem.* 274: 21645-21650.
- Junn, E., et al. 2000. Vitamin D<sub>3</sub> upregulated protein 1 mediates oxidative stress via suppressing the thioredoxin function. *J. Immunol.* 164: 6287-6295.
- Ludwig, D.L., et al. 2001. Cloning, genetic characterization, and chromosomal mapping of the mouse VDUP1 gene. *Gene* 269: 103-112.
- Champlaud, M.F., et al. 2003. The expression of vitamin D-upregulated protein 1 in skin and its interaction with scellin in cultured keratinocytes. *J. Invest. Dermatol.* 121: 781-785.
- Han, S.H., et al. 2003. VDUP1 upregulated by TGFβ1 and 1,25-dihydroxyvitamin D<sub>3</sub> inhibits tumor cell growth by blocking cell-cycle progression. *Oncogene* 22: 4035-4046.
- Kim, K.Y., et al. 2004. Heat shock factor regulates VDUP1 gene expression. *Biochem. Biophys. Res. Commun.* 315: 369-375.

## CHROMOSOMAL LOCATION

Genetic locus: TXNIP (human) mapping to 1q21.1.

## PRODUCT

VDUP1 shRNA (h) Lentiviral Particles is a pool of concentrated, transduction-ready viral particles containing 3 target-specific constructs that encode 19-25 nt (plus hairpin) shRNA designed to knock down gene expression. Each vial contains 200 μl frozen stock containing 1.0 x 10<sup>6</sup> 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 VDUP1 siRNA (h): sc-44943 and VDUP1 shRNA Plasmid (h): sc-44943-SH as alternate gene silencing products.

## STORAGE

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

## APPLICATIONS

VDUP1 shRNA (h) Lentiviral Particles is recommended for the inhibition of VDUP1 expression in human cells.

## SUPPORT REAGENTS

Control shRNA Lentiviral Particles: sc-108080. Available as 200 μl frozen viral stock containing 1.0 x 10<sup>6</sup> 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

VDUP1 (H-12): sc-271238 is recommended as a control antibody for monitoring of VDUP1 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 VDUP1 gene expression knockdown using RT-PCR Primer: VDUP1 (h)-PR: sc-44943-PR (20 μl, 464 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° 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.

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