



# VDUP1 siRNA (m): sc-44944

## 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.

## CHROMOSOMAL LOCATION

Genetic locus: Txnip (mouse) mapping to 3 F2.1.

## PRODUCT

VDUP1 siRNA (m) 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 VDUP1 shRNA Plasmid (m): sc-44944-SH and VDUP1 shRNA (m) Lentiviral Particles: sc-44944-V as alternate gene silencing products.

For independent verification of VDUP1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-44944A, sc-44944B and sc-44944C.

## 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

VDUP1 siRNA (m) is recommended for the inhibition of VDUP1 expression in mouse 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

VDUP1 (D-2): sc-271237 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 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 VDUP1 gene expression knockdown using RT-PCR Primer: VDUP1 (m)-PR: sc-44944-PR (20 μl, 569 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

- Yang, J., et al. 2016. Hemorrhagic shock primes for lung vascular endothelial cell pyroptosis: role in pulmonary inflammation following LPS. *Cell Death Dis.* 7: e2363.
- Song, S., et al. 2020. TXNIP deficiency mitigates podocyte apoptosis via restraining the activation of mTOR or p38 MAPK signaling in diabetic nephropathy. *Exp. Cell Res.* 388: 111862.
- Han, J.H., et al. 2023. CHIP Haploinsufficiency exacerbates hepatic steatosis via enhanced TXNIP expression and endoplasmic reticulum stress responses. *Antioxidants* 12: 458.
- Heng, Y.Y., et al. 2023. Sodium tanshinone IIA sulfonate ameliorates neointima by protecting endothelial progenitor cells in diabetic mice. *BMC Cardiovasc. Disord.* 23: 446.

## RESEARCH USE

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