SANTA CRUZ BIOTECHNOLOGY, INC.

VKORC1L1 siRNA (m): sc-61793

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The Power to Question

BACKGROUND

Vitamin K is a cofactor that is essential for the posttranslational γ-carboxylation of many blood coagulation factors. Vitamin K epoxide reductase (VKOR) is a small transmembrane protein complex located in the endoplasmic reticulum that catalyzes both the reduction of vitamin K epoxide to vitamin K, as well as the conversion of vitamin K to vitamin K hydroquinone. VKOR complex 1 (VKORC1) is a subunit of VKOR that increases the production of reduced vitamin K cofactor. VKORC1 is the rate limiting step in the system and therefore plays a significant role as a regulatory protein. VKORC1L1 (vitamin K epoxide reductase complex subunit 1-like 1) is a paralog to VKORC1. There is 50% identity between VKORC1L1 and VKORC1. VKORC1L1 is more highly conserved between species (human, mouse and rat share 97% identity) but is not as widely expressed as VKORC1.

REFERENCES

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2. Li, T., et al. 2004. Identification of the gene for vitamin K epoxide reductase. Nature 427: 541-544.
3. Bodin, L., et al. 2005. A vitamin K epoxide reductase complex subunit-1 (VKORC1) mutation in a patient with vitamin K antagonist resistance. J. Thromb. Haemost. 3: 1533-1535.
4. Rieder, M.J., et al. 2005. Effect of VKORC1 haplotypes on transcriptional regulation and warfarin dose. N. Engl. J. Med. 352: 2285-2293.
5. Sconce, E.A., et al. 2005. The impact of CYP2C9 and VKORC1 genetic polymorphism and patient characteristics upon warfarin dose requirements: proposal for a new dosing regimen. Blood 106: 2329-2333.
6. Sun, Y.M., et al. 2005. Vitamin K epoxide reductase significantly improves carboxylation in a cell line overexpressing factor X. Blood 106: 3811-3815.
7. Wadelius, M., et al. 2005. Common VKORC1 and GGCX polymorphisms associated with warfarin dose. Pharmacogenomics J. 5: 262-270.
8. Wajih, N., et al. 2005. Increased production of functional recombinant human clotting factor IX by baby hamster kidney cells engineered to overexpress VKORC1, the vitamin K2,3-epoxide-reducing enzyme of the vitamin K cycle. J. Biol. Chem. 280: 31603-31607.
9. Yuan, H.Y., et al. 2005. A novel functional VKORC1 promoter polymorphism is associated with inter-individual and inter-ethnic differences in warfarin sensitivity. Hum. Mol. Genet. 14: 1745-1751.

CHROMOSOMAL LOCATION

Genetic locus: Vkorc1l1 (mouse) mapping to 5 G1.3.

PROTOCOLS

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

PRODUCT

VKORC1L1 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 VKORC1L1 shRNA Plasmid (m): sc-61793-SH and VKORC1L1 shRNA (m) Lentiviral Particles: sc-61793-V as alternate gene silencing products.

For independent verification of VKORC1L1 (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-61793A, sc-61793B and sc-61793C.

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

VKORC1L1 siRNA (m) is recommended for the inhibition of VKORC1L1 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor VKORC1L1 gene expression knockdown using RT-PCR Primer: VKORC1L1 (m)-PR: sc-61793-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.