

Vav2 siRNA (h): sc-41738

BACKGROUND

The Vav gene was originally identified on the basis of its oncogenic activation during the course of gene transfer assays. The major translational product of the Vav proto-oncogene has been identified as a protein containing an array of structural motifs. This protein, known as Vav, Vav1 or p95Vav, contains an N-terminal helix-loop-helix domain and a leucine zipper motif similar to that of Myc family proteins that, if deleted, causes oncogenic activation. In addition, Vav contains an SH2 domain, which could indicate its role as a substrate for tyrosine kinases. Expression of Vav is limited exclusively to cells of hematopoietic origin, including those of the erythroid, lymphoid and myeloid lineages. These results suggest that Vav may represent a new type of signal transduction molecule involved in the transduction of tyrosine phosphorylation signaling into transcriptional events. Vav2 is a member of the Vav family of oncoproteins and acts as a guanosine nucleotide exchange factor (GEF) for RhoG and RhoA-like GTPases in a phosphotyrosine-dependent manner.

REFERENCES

1. Katzav, S., et al. 1989. Vav, a novel human oncogene derived from a locus ubiquitously expressed in hematopoietic cells. *EMBO J.* 8: 2283-2290.
2. Ullrich, A., et al. 1990. Signal transduction by receptors with tyrosine kinase activity. *Cell* 61: 203-212.
3. Coppola, J., et al. 1991. Mechanism of activation of the Vav proto-oncogene. *Cell Growth Differ.* 2: 95-105.

CHROMOSOMAL LOCATION

Genetic locus: VAV2 (human) mapping to 9q34.2.

PRODUCT

Vav2 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 Vav2 shRNA Plasmid (h): sc-41738-SH and Vav2 shRNA (h) Lentiviral Particles: sc-41738-V as alternate gene silencing products.

For independent verification of Vav2 (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-41738A, sc-41738B and sc-41738C.

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

Vav2 siRNA (h) is recommended for the inhibition of Vav2 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

Vav2 (F-6): sc-271442 is recommended as a control antibody for monitoring of Vav2 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 Vav2 gene expression knockdown using RT-PCR Primer: Vav2 (h)-PR: sc-41738-PR (20 μ l, 497 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Barda-Saad, M., et al. 2010. Cooperative interactions at the SLP-76 complex are critical for Actin polymerization. *EMBO J.* 29: 2315-2328.
2. Krause-Gruszczynska, M., et al. 2011. The signaling pathway of *Campylobacter jejuni*-induced Cdc42 activation: role of Fibronectin, Integrin β 1, tyrosine kinases and guanine exchange factor Vav2. *Cell Commun. Signal.* 9: 32.
3. Tegtmeyer, N., et al. 2021. *Helicobacter pylori* CagA induces cortactin Y-470 phosphorylation-dependent gastric epithelial cell scattering via Abl, Vav2 and Rac1 activation. *Cancers* 13: 4241.
4. Faria, M., et al. 2022. Adherens junction integrity is a critical determinant of sodium iodide symporter residency at the plasma membrane of thyroid cells. *Cancers* 14: 5362.

RESEARCH USE

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