SANTA CRUZ BIOTECHNOLOGY, INC.

Vav3 siRNA (h): sc-44187

BACKGROUND

The Vav family of Rho guanine nucleotide exchange factors (GEFs) orchestrate signaling events following lymphocyte antigen receptor activation. Vav3, like Vav (also known as Vav1 or p95Vav), undergoes tyrosine phosphorylation downstream of T cell receptor cross-linkage, and subsequently interacts with two adaptor molecules, SLP76 and 3BP2. Following these events, however, the paths of Vav and Vav3 diverge; Vav affects IL-2 promotor activity, while Vav3 impacts gene transcription linked to serum response element (SRE). Furthermore, Vav3 expression follows a cell cycle-dependent pattern, with transient upregulation occuring during mitosis. Enforced Vav3 expression leads to the appearance of multinucleate cells, implicating a role for Vav3 in the control of cytokinesis.

REFERENCES

1. Romero, F., et al. 1996. p95vav associates with the nuclear protein Ku-70. Mol. Cell. Biol. 16: 37-44.
2. Adam, L., et al. 2000. Interferon-α signaling promotes nucleus-to-cytoplasmic redistribution of p95Vav, and formation of a multisubunit complex involving Vav, Ku80, and Tyk2. Biochem. Biophys. Res. Commun. 267: 692-696.
3. Fujikawa, K., et al. 2002. Vav3 is regulated during the cell cycle and effects cell division. Proc. Natl. Acad. Sci. USA 99: 4313-4318.
4. Fujikawa, K., et al. 2003. Vav1/2/3-null mice define an essential role for Vav family proteins in lymphocyte development and activation but a differential requirement in MAPK signaling in T and B cells. J. Exp. Med. 198: 1595-1608.
5. Zakaria, S., et al. 2004. Differential regulation of TCR-mediated gene transcription by Vav family members. J. Exp. Med. 199: 429-434.
6. Dong, Z., et al. 2006. Vav3 oncogene is overexpressed and regulates cell growth and androgen receptor activity in human prostate cancer. Mol. Endocrinol. 20: 2315-2325.
7. Sauzeau, V., et al. 2006. Vav3 proto-oncogene deficiency leads to sympathetic hyperactivity and cardiovascular dysfunction. Nat. Med. 12: 841-845.

CHROMOSOMAL LOCATION

Genetic locus: VAV3 (human) mapping to 1p13.3.

PRODUCT

Vav3 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Vav3 shRNA Plasmid (h): sc-44187-SH and Vav3 shRNA (h) Lentiviral Particles: sc-44187-V as alternate gene silencing products.

For independent verification of Vav3 (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-44187A, sc-44187B and sc-44187C.

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

Vav3 siRNA (h) is recommended for the inhibition of Vav3 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 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

Vav3 (F-11): sc-518196 is recommended as a control antibody for monitoring of Vav3 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 Vav3 gene expression knockdown using RT-PCR Primer: Vav3 (h)-PR: sc-44187-PR (20 µl, 585 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.

RESEARCH USE

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