

MRVI1a siRNA (h): sc-42930

BACKGROUND

The integration of the murine leukemia virus (MuLV) into the mammalian genome is frequently associated with insertional mutagenesis of cellular proto-oncogenes and tumor suppressor genes leading to cellular transformation and leukemias. Several proto-oncogenes were initially identified as sites of viral integration, including the tumor-suppressors Myc, Myb and Hox. A related murine virus, MRV, also induces leukemia through viral integration and the disruption of the MRVI1 encoding gene. MRVI1 is specifically expressed in megakaryocytes and various myeloid leukemias, and its expression is downregulated during monocytic differentiation. The human and murine homologs of MRVI1 share substantial sequence similarity and similar expression patterns and are most closely related to the lymphoid specific protein Jaw1. The transcripts generated from MRVI1 are alternatively spliced and initiated from two distinct promoters to produce a longer isoform, MRVI1a, which contains an N-terminal 84 amino acid extension that is not present in the otherwise identical, shorter isoform, MRVI1b. These two isoforms have distinct subcellular localization patterns, as MRVI1a contains an additional transmembrane domain and localizes to the endoplasmic reticulum, while MRVI1b is diffusely distributed throughout the cell.

REFERENCES

1. Bowerman, B., Brown, P.O., Bishop, J.M. and Varmus, H.E. 1989. A nucleoprotein complex mediates the integration of retroviral DNA. *Genes Dev.* 3: 469-478.
2. Buchberg, A.M., Bedigian, H.G., Jenkins, N.A. and Copeland, N.G. 1990. Evi-2, a common integration site involved in murine myeloid leukemogenesis. *Mol. Cell. Biol.* 10: 4658-4666.
3. Behrens, T.W., Jagadeesh, J., Scherle, P., Kearns, G., Yewdell, J. and Staudt, L.M. 1994. Jaw1, a lymphoid-restricted membrane protein localized to the endoplasmic reticulum. *J. Immunol.* 153: 682-690.
4. Cho, B.C., Shaughnessy, J.D. Jr., Largaespada, D.A., Bedigian, H.G., Buchberg, A.M., Jenkins, N.A. and Copeland, N.G. 1995. Frequent disruption of the Nf1 gene by a novel murine AIDS virus-related provirus in BXH-2 murine myeloid lymphomas. *J. Virol.* 69: 7138-7146.
5. Moskow, J.J., Bullrich, F., Huebner, K., Daar, I.O. and Buchberg, A.M. 1995. Meis1, a PBX1-related homeobox gene involved in myeloid leukemia in BXH-2 mice. *Mol. Cell. Biol.* 15: 5434-5443.
6. Behrens, T.W., Kearns, G.M., Rivard, J.J., Bernstein, H.D., Yewdell, J.W. and Staudt, L.M. 1996. Carboxyl-terminal targeting and novel post-translational processing of Jaw1, a lymphoid protein of the endoplasmic reticulum. *J. Biol. Chem.* 271: 23528-23534.
7. Shaughnessy, J.D., Jr., Largaespada, D.A., Tian, E., Fletcher, C.F., Cho, B.C., Vyas, P., Jenkins, N.A. and Copeland, N.G. 1999. MRVI1, a common MRV integration site in BXH2 myeloid leukemias, encodes a protein with homology to a lymphoid-restricted membrane protein Jaw1. *Oncogene* 18: 2069-2084.

PROTOCOLS

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

CHROMOSOMAL LOCATION

Genetic locus: MRVI1 (human) mapping to 11p15.4.

PRODUCT

MRVI1a siRNA (h) is a target-specific 19-25 nt siRNA 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 MRVI1a shRNA Plasmid (h): sc-42930-SH and MRVI1a shRNA (h) Lentiviral Particles: sc-42930-V as alternate gene silencing products.

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

MRVI1a siRNA (h) is recommended for the inhibition of MRVI1a 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MRVI1a gene expression knockdown using RT-PCR Primer: MRVI1a (h)-PR: sc-42930-PR (20 μ l). 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.