SANTA CRUZ BIOTECHNOLOGY, INC.

AF-4 siRNA (m): sc-60132

BACKGROUND

Proto-oncogene AF-4 (or FEL) is a product of a chromosomal aberration of the human gene AFF1, which is associated with acute leukemias. The fusion of AF-4 on chromosome band 4q21.3 with the mixed lineage leukemia (MLL or HRX) gene on 11q23.3 results in a MLL-AF-4 chimeric transcription factor in which AF-4 contributes transcriptional effector properties and requires cell-specific accessory factors. MLL is involved in several chromosomal translocations associated with acute myeloid and lymphoid leukemia. The MLL-AF-4 fusion protein is expressed in all normal hematopoietic cells. The expression of MLL-AF-4 influences the production of protein cyclin-dependent kinase inhibitor (CDKN1B), suggesting that inhibition of MLL-AF-4 expression may be a powerful and highly specific treatment of chemotherapy-resistant leukemia.

REFERENCES

1. Morrissey, J.J., et al. 1997. The FEL (AF-4) protein donates transcriptional activation sequences to Hrx-Fel fusion proteins in leukemias containing T(4;11)(Q21;Q23) chromosomal translocations. Leuk. Res. 21: 911-917.
2. Yamamoto, S., et al. 1998. High frequency of fusion transcripts of exon 11 and exon 4/5 in AF-4 gene is observed in cord blood, as well as leukemic cells from infant leukemia patients with t(4;11)(q21;q23). Leukemia 12: 1398-1403.
3. Lovett, B.D., et al. 2001. Near-precise interchromosomal recombination and functional DNA topoisomerase II cleavage sites at MLL and AF-4 genomic breakpoints in treatment-related acute lymphoblastic leukemia with t(4;11) translocation. Proc. Natl. Acad. Sci. USA 98: 9802-9807.
4. Imamura, T., et al. 2002. A novel infant acute lymphoblastic leukemia cell line with MLL-AF5q31 fusion transcript. Leukemia 16: 2302-2308.
5. Murmann, A.E., et al. 2005. Local gene density predicts the spatial position of genetic loci in the interphase nucleus. Exp. Cell Res. 311: 14-26.
6. Thomas, M., et al. 2005. Targeting MLL-AF4 wi of t(4;11)-positive human leukemic cells. Blood 106: 3559-3566.
7. Jansen, M.W., et al. 2005. Efficient and easy detection of MLL-AF4, MLL-AF9 and MLL-ENL fusion gene transcripts by multiplex real-time quantitative RT-PCR in TaqMan and LightCycler. Leukemia 19: 2016-2018.

CHROMOSOMAL LOCATION

Genetic locus: Aff1 (mouse) mapping to 5 E5.

PRODUCT

AF-4 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 AF-4 shRNA Plasmid (m): sc-60132-SH and AF-4 shRNA (m) Lentiviral Particles: sc-60132-V as alternate gene silencing products.

For independent verification of AF-4 (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-60132A, sc-60132B and sc-60132C.

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

AF-4 siRNA (m) is recommended for the inhibition of AF-4 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 AF-4 gene expression knockdown using RT-PCR Primer: AF-4 (m)-PR: sc-60132-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Chen, Y., et al. 2020. AFF1 inhibits adipogenic differentiation via targeting TGM2 transcription. Cell Prolif. E-published.

RESEARCH USE

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

PROTOCOLS

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