SANTA CRUZ BIOTECHNOLOGY, INC.

twist2 siRNA (h): sc-106728

BACKGROUND

Members of the myogenic determination family are basic helix-loop-helix (bHLH) proteins that can be separated into two classes, both of which work together to activate DNA transcription. Class A proteins include the ubiquitously expressed E-box binding factors, namely E2A, ITF-2 and HEB, while class B proteins, such as MyoD, myogenin and Neuro D (BETA2), are transiently expressed and exhibit a much more limited tissue distribution. Working in opposition to these positively acting factors are a specialized group of basic helix-loop-helix (bHLH) transcription factors that function as dominant negative regulators and are involved in cell lineage determination and differentiation. Twist2, also known as DERMO1 is a 160 amino acid protein that localizes to both the nucleus and the cytoplasm where it binds to the E-box consensus sequence 5'-CANNTG-3' and inhibits the transcriptional activity of class A and class B proteins. Expressed at high levels in embryonic tissue and in adult glandular tissue, twist2 also plays a role in postnatal glycogen storage and energy metabolism, as well as in the regulation of preosteo-blast cell differentiation during osteogenesis.

REFERENCES

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2. Lee, M.S., et al. 2000. Human Dermo-1 has attributes similar to twist in early bone development. Bone 27: 591-602.
3. Gong, X.Q., et al. 2002. Dermo-1, a multifunctional basic helix-loop-helix protein, represses MyoD transactivation via the HLH domain, MEF-2 interaction, and chromatin deacetylation. J. Biol. Chem. 277: 12310-12317.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 607556. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
5. Lee, Y.S., et al. 2003. Twist2, a novel ADD1/SREBP1c interacting protein, represses the transcriptional activity of ADD1/SREBP1c. Nucleic Acids Res. 31: 7165-7174.
6. Raval, A., et al. 2005. Twist2 demonstrates differential methylation in immunoglobulin variable heavy chain mutated and unmutated chronic lymphocytic leukemia. J. Clin. Oncol. 23: 3877-3885.
7. Firulli, B.A., et al. 2005. Altered twist1 and Hand2 dimerization is associated with Saethre-Chotzen syndrome and limb abnormalities. Nat. Genet. 37: 373-381.
8. Terauchi, M., et al. 2007. Possible involvement of twist in enhanced peritoneal metastasis of epithelial ovarian carcinoma. Clin. Exp. Metastasis 24: 329-339.
9. Ansieau, S., et al. 2008. Induction of EMT by twist proteins as a collateral effect of tumor-promoting inactivation of premature senescence. Cancer Cell 14: 79-89.

CHROMOSOMAL LOCATION

Genetic locus: TWIST2 (human) mapping to 2q37.3.

PRODUCT

twist2 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 twist2 shRNA Plasmid (h): sc-106728-SH and twist2 shRNA (h) Lentiviral Particles: sc-106728-V as alternate gene silencing products.

For independent verification of twist2 (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-106728A, sc-106728B and sc-106728C.

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

twist2 siRNA (h) is recommended for the inhibition of twist2 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor twist2 gene expression knockdown using RT-PCR Primer: twist2 (h)-PR: sc-106728-PR (20 µl, 590 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Liu, R.R., et al. 2016. Eukaryotic translation initiation factor 5A2 regulates the migration and invasion of hepatocellular carcinoma cells via pathways involving reactive oxygen species. Oncotarget 7: 24348-24360.

RESEARCH USE

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