SANTA CRUZ BIOTECHNOLOGY, INC.

MOX-2 siRNA (h): sc-106233

BACKGROUND

Closely related homeobox proteins, MOX-1 and MOX-2, belong to a family of nonclustered, diverged homeobox genes that are expressed in overlapping patterns in the paraxial mesoderm and its derivatives. MOX-1 and MOX-2 function transiently in the formation of mesodermal and mesenchymal derivatives. MOX-1 and MOX-2 are implicated in the early steps of mesoderm formation during gastrulation. In addition, the MOX proteins are also involved in somatic differentiation. Significantly, MOX-1 associates more strongly with Pax-1, whereas MOX-2 preferentially associates with Pax-3. Specifically, expression of MOX-2 (also known as mesenchyme homeobox 2 or GAX), has been shown to be critical in axial skeleton development. MOX-2 is not needed for the migration of myogenic precursors into the limb bud, but it is essential for normal appendicular muscle formation and for the normal regulation of myogenic genes. MOX-2 is expressed in placental tissue. The human MEOX2 gene maps to chromosome 7p21.2 and encodes the MOX-2 protein. Mutations in the gene may be involved in craniofacial and/or skeletal abnormalities.

REFERENCES

1. Candia, A.F., et al. 1992. MOX-1 and MOX-2 define a novel homeobox gene subfamily and are differentially expressed during early mesodermal patterning in mouse embryos. Development 116: 1123-1136.
2. Candia, A.F., et al. 1996. Differential localization of MOX-1 and MOX-2 proteins indicates distinct roles during development. Int. J. Dev. Biol. 40: 1179-1184.
3. Stelnicki, E.J., et al. 1997. The human homeobox genes Msx-1, Msx-2, and MOX-1 are differentially expressed in the dermis and epidermis in fetal and adult skin. Differentiation 62: 33-41.

CHROMOSOMAL LOCATION

Genetic locus: MEOX2 (human) mapping to 7p21.2.

PRODUCT

MOX-2 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 MOX-2 shRNA Plasmid (h): sc-106233-SH and MOX-2 shRNA (h) Lentiviral Particles: sc-106233-V as alternate gene silencing products.

For independent verification of MOX-2 (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-106233A, sc-106233B and sc-106233C.

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

MOX-2 siRNA (h) is recommended for the inhibition of MOX-2 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

MOX-2 (A-8): sc-376748 is recommended as a control antibody for monitoring of MOX-2 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MOX-2 gene expression knockdown using RT-PCR Primer: MOX-2 (h)-PR: sc-106233-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. Ávila-Moreno, F., et al. 2014. Overexpression of MEOX2 and TWIST1 is associated with H3K27me3 levels and determines lung cancer chemoresistance and prognosis. PLoS ONE 9: e114104.
2. Ávila-Moreno, F., et al. 2016. Correction: overexpression of MEOX2 and TWIST1 is associated with H3K27me3 levels and determines lung cancer chemoresistance and prognosis. PLoS ONE 11: e0146569.
3. Armas-López, L., et al. 2017. Epigenomic study identifies a novel mesenchyme homeobox2-GLI1 transcription axis involved in cancer drug resistance, overall survival and therapy prognosis in lung cancer patients. Oncotarget 8: 67056-67081.
4. Byun, H.S., et al. 2023. Rubiarbonol B induces RIPK1-dependent necroptosis via NOX1-derived ROS production. Cell Biol. Toxicol. 39: 1677-1696.

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.