



BMP-10 siRNA (h): sc-39758

BACKGROUND

Bone morphogenic proteins (BMPs) are members of the TGF β superfamily and are involved in the induction of cartilage and bone formation. BMP-10 (bone morphogenetic protein 10) is a 424 amino acid secreted protein that exists as a disulfide-linked homodimer. Expressed specifically in heart tissue, BMP-10 functions to prevent the premature activation of p57 (a negative cell cycle regulator), thereby maintaining the proliferative activity of embryonic cardiomyocytes and playing a critical role in the formation of trabeculae within the developing heart. Additionally, BMP-10 inhibits the growth and migration of endothelial cells and functions as a ligand for ALK-1, a protein that is tightly linked to angiogenesis. This suggests that, in addition to its role in cardiomyocyte formation, BMP-10 participates in the formation of blood vessels in developing cardiac muscle.

REFERENCES

1. Neuhaus, H., et al. 1999. Heart specific expression of mouse BMP-10 a novel member of the TGF β superfamily. *Mech. Dev.* 80: 181-184.
2. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 608748. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
3. Teichmann, U., et al. 2004. Highly restricted BMP-10 expression in the trabeculating myocardium of the chick embryo. *Dev. Genes Evol.* 214: 96-98.
4. Chen, H., et al. 2004. BMP-10 is essential for maintaining cardiac growth during murine cardiogenesis. *Development* 131: 2219-2231.
5. Mazerbourg, S., et al. 2005. Identification of receptors and signaling pathways for orphan bone morphogenetic protein/growth differentiation factor ligands based on genomic analyses. *J. Biol. Chem.* 280: 32122-32132.
6. Nakano, N., et al. 2007. Interaction of BMP-10 with Tcap may modulate the course of hypertensive cardiac hypertrophy. *Am. J. Physiol. Heart Circ. Physiol.* 293: H3396-H3403.
7. David, L., et al. 2007. Identification of BMP-9 and BMP-10 as functional activators of the orphan activin receptor-like kinase 1 (ALK1) in endothelial cells. *Blood* 109: 1953-1961.

CHROMOSOMAL LOCATION

Genetic locus: BMP10 (human) mapping to 2p13.3.

PRODUCT

BMP-10 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see BMP-10 shRNA Plasmid (h): sc-39758-SH and BMP-10 shRNA (h) Lentiviral Particles: sc-39758-V as alternate gene silencing products.

For independent verification of BMP-10 (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-39758A, sc-39758B and sc-39758C.

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

BMP-10 siRNA (h) is recommended for the inhibition of BMP-10 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 BMP-10 gene expression knockdown using RT-PCR Primer: BMP-10 (h)-PR: sc-39758-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Jin, Y., et al. 2019. Loss of BMP-10 is correlated with poor survival in ovarian cancer. *Pathol. Res. Pract.* 215: 121-126.

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.