



## BMP-10 siRNA (m): sc-39759

### BACKGROUND

Bone morphogenic proteins (BMPs) are members of the TGF $\beta$  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 $\beta$  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 (mouse) mapping to 6 D1.

### PRODUCT

BMP-10 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see BMP-10 shRNA Plasmid (m): sc-39759-SH and BMP-10 shRNA (m) Lentiviral Particles: sc-39759-V as alternate gene silencing products.

For independent verification of BMP-10 (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-39759A, sc-39759B and sc-39759C.

### 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

### APPLICATIONS

BMP-10 siRNA (m) is recommended for the inhibition of BMP-10 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  $\mu$ M in 66  $\mu$ 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 (m)-PR: sc-39759-PR (20  $\mu$ 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.

### PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.