

BMP-8A siRNA (m): sc-39753

BACKGROUND

Bone morphogenic proteins (BMPs) are members of the TGF β superfamily. BMPs are involved in the induction of cartilage and bone formation. *In vivo* studies have shown that BMP-2 (also designated BMP-2A) and BMP-3 can independently induce cartilage formation. Smad3 association with the TGF β receptor complex and Smad1 translocation to the nucleus are observed after the addition of BMP-4 (also designated BMP-2B), suggesting that BMP-4 may play a role in activation of the Smad pathway. BMP-5, BMP-6 and BMP-7 all share high sequence homology with BMP-2, indicating that they each may be able to induce cartilage formation. BMP-8 is thought to be involved in early development, as detectable expression has not been found in adult organs. Two BMP-8 proteins exist, namely BMP-8A and BMP-8B (also designated OP-2), and are encoded by two distinct genes.

REFERENCES

1. Wozney, J.M., et al. 1988. Novel regulators of bone formation: molecular clones and activities. *Science* 242: 1528-1534.
2. Massague, J. 1990. The transforming growth factor β family. *Annu. Rev. Cell Biol.* 6: 597-641.
3. Celeste, A.J., et al. 1990. Identification of transforming growth factor β family members present in bone-inductive protein purified from bovine bone. *Proc. Natl. Acad. Sci. USA* 87: 9843-9847.
4. Oskaynak, E., et al. 1992. Osteogenic protein-2. A new member of the transforming growth factor β superfamily expressed early in embryogenesis. *J. Biol. Chem.* 267: 25220-25227.
5. Gitelman, S.E., et al. 1994. Recombinant Vgr-1/BMP-6-expressing tumors induce fibrosis and endochondral bone formation *in vivo*. *J. Cell Biol.* 126: 1595-1609.
6. Liu, F., et al. 1996. A human Mad protein acting as a BMP-regulated transcriptional activator. *Nature* 381: 620-623.
7. Zhang, Y., et al. 1996. Receptor-associated Mad homologues synergize as effectors of the TGF β response. *Nature* 383: 168-172.
8. McPherron, A.C., et al. 1997. Regulation of skeletal muscle mass in mice by a new TGF β superfamily member. *Nature* 387: 83-90.
9. van der Horst, G., et al. 2002. Differentiation of murine preosteoblastic KS483 cells depends on autocrine bone morphogenetic protein signaling during all phases of osteoblast formation. *Bone* 31: 661-669.

CHROMOSOMAL LOCATION

Genetic locus: Bmp8a (mouse) mapping to 4 D2.2.

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.

PRODUCT

BMP-8A 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see BMP-8A shRNA Plasmid (m): sc-39753-SH and BMP-8A shRNA (m) Lentiviral Particles: sc-39753-V as alternate gene silencing products.

For independent verification of BMP-8A (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-39753A, sc-39753B and sc-39753C.

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-8A siRNA (m) is recommended for the inhibition of BMP-8A 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 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-8A gene expression knockdown using RT-PCR Primer: BMP-8A (m)-PR: sc-39753-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.