SANTA CRUZ BIOTECHNOLOGY, INC.

BMP2K siRNA (m): sc-141719

BACKGROUND

The phosphorylation and dephosphorylation of proteins on serine and threonine residues is an essential means of regulating a broad range of cellular functions in eukaryotes, including cell division, homeostasis and apoptosis. A group of proteins that are intimately involved in this process are the serine/threonine (Ser/Thr) protein kinases. BMP2K (BMP2 inducible kinase), also known as BIKE, is a 1,161 amino acid nuclear protein that contains one protein kinase domain and belongs to the Ser/Thr protein kinase family. Thought to be involved in osteoblast differentiation, BMP2K catalyzes the ATP-dependent phosphorylation of bone morphogenic proteins (BMPs); proteins that are essential for proper cartilage and bone formation. Via its catalytic activity, BMP2K may play a role in signaling pathways that mediate bone growth and cellular differentiation. Three isoforms of BMP2K exist due to alternative splicing events.

REFERENCES

1. Hanks, S.K., et al. 1988. The protein kinase family: conserved features and deduced phylogeny of the catalytic domains. Science 241: 42-52.
2. Hoffmann, A., et al. 2001. BMP signaling pathways in cartilage and bone formation. Crit. Rev. Eukaryot. Gene Expr. 11: 23-45.
3. Kearns, A.E., et al. 2001. Cloning and characterization of a novel protein kinase that impairs osteoblast differentiation *in vitro*. J. Biol. Chem. 276: 42213-42218.
4. Arikawa, T., et al. 2004. Regulation of bone morphogenetic protein-2 expression by endogenous prostaglandin E2 in human mesenchymal stem cells. J. Cell. Physiol. 200: 400-406.
5. Medici, M., et al. 2006. BMP-2 gene polymorphisms and osteoporosis: the Rotterdam Study. J. Bone Miner. Res. 21: 845-854.
6. Mukhopadhyay, P., et al. 2008. BMP signaling dynamics in embryonic orofacial tissue. J. Cell. Physiol. 216: 771-779.
7. Chen, M., et al. 2008. Inhibition of β-catenin signaling causes defects in postnatal cartilage development. J. Cell Sci. 121: 1455-1465.

CHROMOSOMAL LOCATION

Genetic locus: Bmp2k (mouse) mapping to 5 E3.

PRODUCT

BMP2K siRNA (m) is a pool of 2 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 BMP2K shRNA Plasmid (m): sc-141719-SH and BMP2K shRNA (m) Lentiviral Particles: sc-141719-V as alternate gene silencing products.

For independent verification of BMP2K (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-141719A and sc-141719B.

RESEARCH USE

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

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

BMP2K siRNA (m) is recommended for the inhibition of BMP2K 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 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 BMP2K gene expression knockdown using RT-PCR Primer: BMP2K (m)-PR: sc-141719-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.