SANTA CRUZ BIOTECHNOLOGY, INC.

MEPE siRNA (m): sc-75774

BACKGROUND

MEPE (matrix extracellular phosphoglycoprotein), also known as OF45 (osteoblast/osteocyte factor 45), is a 525 amino acid extracellular matrix protein. Expressed in osteocytes and brain, MEPE is a regulator of bone metabolism that is thought to mediate mineralization and demineralization within the osteocyte microenvironment. MEPE contains an RGD cell-attachment motif and shares molecular similarities with several dentin-bone extracellular matrix RGD-containing phosphoglycoproteins, including OPN (osteopontin) and DSP (dentin sialophosphoprotein). Via its ability to control bone mineralization, MEPE is associated with various developmental events such as skeletogenesis, bone regeneration and odontogenesis. MEPE is secreted in hypophosphatemic osteomalacia tumors, suggesting a possible role in the pathophysiology of bone-related cancers. Defects in the gene encoding MEPE may be associated with osteomalacia, an adult form of the childhood disease known as rickets that is caused by inadequate bone mineralization.

REFERENCES

1. MacDougall, M., et al. 2002. MEPE/OF45, a new dentin/bone matrix protein and candidate gene for dentin diseases mapping to chromosome 4q21. Connect. Tissue Res. 43: 320-330.
2. Bresler, D., et al. 2004. Serum MEPE-ASARM-peptides are elevated in X-linked rickets (HYP): implications for phosphaturia and rickets. J. Endocrinol. 183: R1-R9.
3. Lu, C., et al. 2004. Mepe is expressed during skeletal development and regeneration. Histochem. Cell Biol. 121: 493-499.
4. Nampei, A., et al. 2004. Matrix extracellular phosphoglycoprotein (MEPE) is highly expressed in osteocytes in human bone. J. Bone Miner. Metab. 22: 176-184.
5. Harris, S.E., et al. 2007. DMP1 and MEPE expression are elevated in osteocytes after mechanical loading *in vivo:* theoretical role in controlling mineral quality in the perilacunar matrix. J. Musculoskelet. Neuronal Interact. 7: 313-315.
6. Six, N., et al. 2007. Dentonin, a MEPE fragment, initiates pulp-healing response to injury. J. Dent. Res. 86: 780-785.

CHROMOSOMAL LOCATION

Genetic locus: Mepe (mouse) mapping to 5 E5.

PRODUCT

MEPE 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MEPE shRNA Plasmid (m): sc-75774-SH and MEPE shRNA (m) Lentiviral Particles: sc-75774-V as alternate gene silencing products.

For independent verification of MEPE (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-75774A, sc-75774B and sc-75774C.

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

MEPE siRNA (m) is recommended for the inhibition of MEPE 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.

GENE EXPRESSION MONITORING

MEPE (C-4): sc-377035 is recommended as a control antibody for monitoring of MEPE 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MEPE gene expression knockdown using RT-PCR Primer: MEPE (m)-PR: sc-75774-PR (20 µl). 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 for detailed protocols and support products.