SANTA CRUZ BIOTECHNOLOGY, INC.

UCMA siRNA (h): sc-90398

BACKGROUND

UCMA (unique cartilage matrix-associated protein) is a 138 amino acid secreted protein that is highly expressed in resting chrondrocytes in developing long bones and is thought to function in the early phase of chrondrocyte differentiation. A furin-like protease processes UCMA into an N-terminal 37 amino acid peptide and a C-terminal 74 amino acid peptide, which is referred to as unique cartilage matrix-associated protein C-terminal fragment (Ucma-C). Introduction of recombinant Ucma-C interferes with osteogenic differentiation of mesenchymal stem cells, MC3T3-E1 preosteoblasts and primary osteoblasts. This suggests that UCMA may be involved in the negative regulation of osteogenic differentiation of osteochondrogenic precursor cells at the cartilage-bone interface and in peripheral zones of fetal cartilage.

REFERENCES

1. Chen, D., et al. 2004. Bone morphogenetic proteins. Growth Factors 22: 233-241.
2. Adams, S.L., et al. 2007. Integration of signaling pathways regulating chondrocyte differentiation during endochondral bone formation. J. Cell. Physiol. 213: 635-641.
3. Mackie, E.J., et al. 2008. Endochondral ossification: how cartilage is converted into bone in the developing skeleton. Int. J. Biochem. Cell Biol. 40: 46-62.
4. Surmann-Schmitt, C., et al. 2008. UCMA, a novel secreted cartilage-specific protein with implications in osteogenesis. J. Biol. Chem. 283: 7082-7093.
5. Tagariello, A., et al. 2008. UCMA—a novel secreted factor represents a highly specific marker for distal chondrocytes. Matrix Biol. 27: 3-11.
6. Le Jeune, M., et al. 2010. Identification of four alternatively spliced transcripts of the UCMA/GRP gene, encoding a new Gla-containing protein. Exp. Cell Res. 316: 203-215.

CHROMOSOMAL LOCATION

Genetic locus: UCMA (human) mapping to 10p13.

PRODUCT

UCMA 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see UCMA shRNA Plasmid (h): sc-90398-SH and UCMA shRNA (h) Lentiviral Particles: sc-90398-V as alternate gene silencing products.

For independent verification of UCMA (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-90398A, sc-90398B and sc-90398C.

PROTOCOLS

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

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

UCMA siRNA (h) is recommended for the inhibition of UCMA 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 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

UCMA (H-2): sc-515468 is recommended as a control antibody for monitoring of UCMA 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 UCMA gene expression knockdown using RT-PCR Primer: UCMA (h)-PR: sc-90398-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.