SANTA CRUZ BIOTECHNOLOGY, INC.

Periostin siRNA (h): sc-61324

BACKGROUND

Periostin (PN), also designated osteoblast-specific factor 2 (OSF-2), is a disulfide linked protein originally isolated as a osteoblast-specific factor. Periostin is a secreted protein that binds heparin and functions as a ligand for $\alpha_v\beta_3$ and $\alpha_v\beta_5$ Integrins. In preosteoblasts, Periostin acts as a cell adhesion molecule and plays a role in osteoblast recruitment, spreading and attachment. Periostin is mainly detected in lower gastrointestinal tract, aorta, stomach, placenta, uterus and breast tissues but is up-regulated in epithelial ovarian tumors and overexpressed in breast cancer. Expression of Periostin is increased by bone morphogenetic protein (BMP2) and transforming growth factor β 1 (TGFβ1). Periostin contains a typical signal sequence, followed by a cysteine-rich domain, a fourfold repeated domain, which shows homology with the insect protein fasciclin, and a C-terminal domain.

CHROMOSOMAL LOCATION

Genetic locus: POSTN (human) mapping to 13q13.3.

PRODUCT

Periostin 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 Periostin shRNA Plasmid (h): sc-61324-SH and Periostin shRNA (h) Lentiviral Particles: sc-61324-V as alternate gene silencing products.

For independent verification of Periostin (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-61324A, sc-61324B and sc-61324C.

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

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

Periostin (F-10): sc-398631 is recommended as a control antibody for monitoring of Periostin 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 Periostin gene expression knockdown using RT-PCR Primer: Periostin (h)-PR: sc-61324-PR (20 µl, 544 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Xu, D., et al. 2012. Cancer stem cell-related gene Periostin: a novel prognostic marker for breast cancer. PLoS ONE 7: e46670.
2. Qiu, F., et al. 2013. Periostin mediates the increased pro-angiogenic activity of gastric cancer cells under hypoxic conditions. J. Biochem. Mol. Toxicol. 27: 364-369.
3. Ishikawa, K., et al. 2014. Periostin promotes the generation of fibrous membranes in proliferative vitreoretinopathy. FASEB J. 28: 131-142.
4. Xiao, Z.M., et al. 2015. Periostin induces chemoresistance in colon cancer cells through activation of the PI3K/Akt/survivin pathway. Biotechnol. Appl. Biochem. 62: 401-406.
5. Koh, S.J., et al. 2016. Matricellular protein Periostin mediates intestinal inflammation through the activation of nuclear factor κB signaling. PLoS ONE 11: e0149652.
6. Wang, X.D., et al. 2016. Periostin mediates cigarette smoke extract-induced proliferation and migration in pulmonary arterial smooth muscle cells. Biomed. Pharmacother. 83: 514-520.
7. Chen, G., et al. 2017. Transcriptional induction of Periostin by a sulfatase 2-TGFβ1-Smad signaling axis mediates tumor angiogenesis in hepatocellular carcinoma. Cancer Res. 77: 632-645.
8. Liu, C., et al. 2018. Bone marrow mesenchymal stem cells promote head and neck cancer progression through Periostin-mediated phosphoinositide 3-kinase/Akt/mammalian target of rapamycin. Cancer Sci. 109: 688-698.
9. Koh, S.J., et al. 2019. Matricellular protein Periostin promotes colitis-associated colon tumorigenesis in mice. Carcinogenesis 40: 102-111.

RESEARCH USE

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