

# GDF-11 siRNA (h): sc-44724

## BACKGROUND

GDF-11, a member of the transforming growth factor  $\beta$  (TGF $\beta$ ) superfamily, controls anterior/posterior patterning of the axial skeleton, regulates organogenesis by controlling expression of GDNF, contributes to the control of Hox gene expression and induces phosphorylation of Smad2. In addition, GDF-11 mediates signaling of Nodal during left-right patterning and development of head structures and inhibits generation of new neurons by neuronal progenitors in the olfactory epithelium.

## REFERENCES

- Gad, J.M., et al. 1999. Axis development: the mouse become daschund. *Curr. Biol.* 9: R783-R786.
- McPherron, A.C., et al. 1999. Regulation of anterior/posterior patterning of the axial skeleton by growth/differentiation factor 11. *Nat. Genet.* 22: 260-264.
- Liu, J.P., et al. 2001. Assigning the positional identity of spinal motor neurons: rostrocaudal patterning of Hox-c expression by FGFs, GDF-11 and retinoids. *Neuron* 32: 997-1012.
- Gamer, L.W., et al. 2001. GDF-11 is a negative regulator of chondrogenesis and myogenesis in the developing chick limb. *Dev. Biol.* 229: 407-420.
- Oh, S.P., et al. 2002. Activin type IIA and IIB receptors mediate GDF-11 signaling in axial vertebral patterning. *Genes Dev.* 16: 2749-2754.
- Esquela, A.F., et al. 2003. Regulation of metanephric kidney development by growth/differentiation factor 11. *Dev. Biol.* 257: 356-370.

## CHROMOSOMAL LOCATION

Genetic locus: GDF11 (human) mapping to 12q13.2.

## PRODUCT

GDF-11 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see GDF-11 shRNA Plasmid (h): sc-44724-SH and GDF-11 shRNA (h) Lentiviral Particles: sc-44724-V as alternate gene silencing products.

For independent verification of GDF-11 (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-44724A, sc-44724B and sc-44724C.

## 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  $\mu$ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330  $\mu$ l of RNase-free water makes a 10  $\mu$ M solution in a 10  $\mu$ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

GDF-11 siRNA (h) is recommended for the inhibition of GDF-11 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  $\mu$ M in 66  $\mu$ 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.

## GENE EXPRESSION MONITORING

GDF-11 (X-19): sc-81952 is recommended as a control antibody for monitoring of GDF-11 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-IgG $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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-IgG $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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 GDF-11 gene expression knockdown using RT-PCR Primer: GDF-11 (h)-PR: sc-44724-PR (20  $\mu$ l, 600 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

- Patki, M., et al. 2015. Differential effects of estrogen-dependent transactivation vs. transrepression by the estrogen receptor on invasiveness of HER2 overexpressing breast cancer cells. *Biochem. Biophys. Res. Commun.* 457: 404-411.
- Qi, X., et al. 2020. Endogenous GDF11 regulates odontogenic differentiation of dental pulp stem cells. *J. Cell. Mol. Med.* 24: 11457-11464.
- Darlane, C., et al. 2022. High keratin-7 expression in benign peri-tumoral prostatic glands is predictive of bone metastasis onset and prostate cancer-specific mortality. *Cancers* 14: 1623.

## RESEARCH USE

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