



# WDR5 siRNA (h): sc-61798

## BACKGROUND

WD-repeat protein 5 (WDR5, also designated BMP-2-induced gene 3 kb or BIG-3) belongs to the family of WD-40 repeat proteins, and is essential for vertebrate development, Hox gene activation and global H3K4 trimethylation. WDR5 is a conserved subunit of trithorax (TRX) histone methyltransferase complexes that selectively binds to dimethylated Lys 4 (K4me<sub>2</sub>) in Histone H3 to promote K4 trimethylation by TRX. It is expressed in osteoblasts, chondrocytes, osteocytes and marrow stromal cells. The WDR5 protein contains seven WD-repeats, which may play a role in its function of accelerating osteoblast differentiation.

## REFERENCES

1. Wysocka, J., et al. 2005. WDR5 associates with Histone H3 methylated at K4 and is essential for H3 K4 methylation and vertebrate development. *Cell* 121: 859-872.
2. Gori, F., et al. 2005. WDR5, a novel WD repeat protein, regulates osteo *in vivo*. *J. Musculoskelet. Neuronal Interact.* 5: 338-339.
3. Couture, J.F., et al. 2006. Molecular recognition of Histone H3 by the WD40 protein WDR5. *Nat. Struct. Mol. Biol.* 13: 698-703.
4. Ruthenburg, A.J., et al. 2006. Histone H3 recognition and presentation by the WDR5 module of the MLL1 complex. *Nat. Struct. Mol. Biol.* 13: 704-712.

## CHROMOSOMAL LOCATION

Genetic locus: WDR5 (human) mapping to 9q34.2.

## PRODUCT

WDR5 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 WDR5 shRNA Plasmid (h): sc-61798-SH and WDR5 shRNA (h) Lentiviral Particles: sc-61798-V as alternate gene silencing products.

For independent verification of WDR5 (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-61798A, sc-61798B and sc-61798C.

## 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

WDR5 siRNA (h) is recommended for the inhibition of WDR5 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

WDR5 (G-9): sc-393080 is recommended as a control antibody for monitoring of WDR5 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 WDR5 gene expression knockdown using RT-PCR Primer: WDR5 (h)-PR: sc-61798-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Koues, O.J., et al. 2009. The 19S proteasome positively regulates histone methylation at cytokine inducible genes. *Biochim. Biophys. Acta* 1789: 691-701.
2. Araki, Y., et al. 2016. Histone methylation and STAT-3 differentially regulate interleukin-6-induced matrix metalloproteinase gene activation in rheumatoid arthritis synovial fibroblasts. *Arthritis Rheumatol.* 68: 1111-1123.
3. Xu, Y., et al. 2017. Regulation of endothelial intracellular adenosine via adenosine kinase epigenetically modulates vascular inflammation. *Nat. Commun.* 8: 943.
4. Xu, W., et al. 2019. Expression of WD repeat domain 5 (WDR5) is associated with progression and reduced prognosis in papillary thyroid carcinoma. *Med. Sci. Monit.* 25: 3762-3770.
5. González, D., et al. 2024. Epigenetic control of SOX9 gene by the histone acetyltransferase P300 in human Sertoli cells. *Heliyon* 10: e33173.

## RESEARCH USE

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