

# WDR4 siRNA (h): sc-91529

## BACKGROUND

WD-repeats are motifs that are found in a variety of proteins and are characterized by a conserved core of 40-60 amino acids that commonly form a tertiary propeller structure. While proteins that contain WD-repeats participate in a wide range of cellular functions, they are generally involved in regulatory mechanisms concerning chromatin assembly, cell cycle control, signal transduction, RNA processing, apoptosis and vesicular trafficking. WDR4 (WD-repeat-containing protein 4), also known as TRM82, is a 412 amino acid protein that contains two WD-repeats. Expressed as multiple isoforms due to alternative splicing events, WDR4 forms a complex with METTL1 (methyl-transferase like 1) that is necessary for the 7-methylguanosine modification of tRNA. Defects in the gene encoding WDR4 may be associated with the development of Down syndrome, a chromosomal disorder characterized by deformed physical features and mental retardation.

## REFERENCES

1. van der Voorn, L., et al. 1992. The WD-40 repeat. *FEBS Lett.* 307: 131-134.
2. Neer, E.J., et al. 1994. The ancient regulatory-protein family of WD-repeat proteins. *Nature* 371: 297-300.
3. Garcia-Higuera, I., et al. 1996. Folding of proteins with WD-repeats: comparison of six members of the WD-repeat superfamily to the G protein  $\beta$  subunit. *Biochemistry* 35: 13985-13994.
4. Garcia-Higuera, I., et al. 1998. Folding a WD repeat propeller. Role of highly conserved aspartic acid residues in the G protein  $\beta$  subunit and Sec13. *J. Biol. Chem.* 273: 9041-9049.
5. Smith, T.F., et al. 1999. The WD repeat: a common architecture for diverse functions. *Trends Biochem. Sci.* 24: 181-185.
6. Michaud, J., et al. 2000. Isolation and characterization of a human chromosome 21q22.3 gene (WDR4) and its mouse homologue that code for a WD-repeat protein. *Genomics* 68: 71-79.
7. Li, D. et al. 2001. WD-repeat proteins: structure characteristics, biological function, and their involvement in human diseases. *Cell. Mol. Life Sci.* 58: 2085-2097.
8. Alexandrov, A., et al. 2002. Two proteins that form a complex are required for 7-methylguanosine modification of yeast tRNA. *RNA* 8: 1253-1266.

## CHROMOSOMAL LOCATION

Genetic locus: WDR4 (human) mapping to 21q22.3.

## PRODUCT

WDR4 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 WDR4 shRNA Plasmid (h): sc-91529-SH and WDR4 shRNA (h) Lentiviral Particles: sc-91529-V as alternate gene silencing products.

For independent verification of WDR4 (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-91529A, sc-91529B and sc-91529C.

## 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

WDR4 siRNA (h) is recommended for the inhibition of WDR4 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

WDR4 (321.9): sc-100894 is recommended as a control antibody for monitoring of WDR4 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 WDR4 gene expression knockdown using RT-PCR Primer: WDR4 (h)-PR: sc-91529-PR (20  $\mu$ l). 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](http://www.scbt.com) for detailed protocols and support products.