

# TCF-4 siRNA (m): sc-43526

## BACKGROUND

T cell factors (TCFs) comprise a family of DNA-binding transcriptional activators that are essential for lymphoid cell development. These transcription factors are activated by the Wnt-1 and Wingless pathways and are characterized by the presence of a conserved protein motif, the high mobility group (HMG) 1 box, which mediates DNA binding. TCF-4 mainly localizes in the cytoplasm and is transported into the nucleus directly bound to  $\beta$ -catenin in a cooperative manner. This TCF-4/ $\beta$ -catenin complex induces expression of Wnt target genes, including multiple cancer-associated genes. c-Jun also interacts with TCF-4 and  $\beta$ -catenin, and the phosphorylation-dependent interaction between c-Jun and TCF-4 regulates intestinal tumorigenesis by integrating JNK and APC/ $\beta$ -catenin. TCF-4 is also implicated in bipolar affective disorder.

## REFERENCES

1. Van de Wetering, M., et al. 1991. Identification and cloning of TCF-1, a T lymphocyte-specific transcription factor containing a sequence-specific HMG box. *EMBO J.* 10: 123-132.
2. Van de Wetering, M., et al. 1992. The human T cell transcription factor-1 gene. Structure, localization, and promoter characterization. *J. Biol. Chem.* 267: 8530-8536.
3. Verbeek, S., et al. 1995. An HMG box-containing T cell factor required for thymocyte differentiation. *Nature* 374: 70-74.
4. Morin, P.J., et al. 1997. Activation of  $\beta$ -catenin-TCF signaling in colon cancer by mutations in  $\beta$ -catenin or APC. *Science* 275: 1787-1790.
5. Dorsky, R.I., et al. 1998. Control of neural crest cell fate by the Wnt signalling pathway. *Nature* 396: 370-373.

## CHROMOSOMAL LOCATION

Genetic locus: Tcf7l2 (mouse) mapping to 19 D2.

## PRODUCT

TCF-4 siRNA (m) 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 TCF-4 shRNA Plasmid (m): sc-43526-SH and TCF-4 shRNA (m) Lentiviral Particles: sc-43526-V as alternate gene silencing products.

For independent verification of TCF-4 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-43526A, sc-43526B and sc-43526C.

## 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

TCF-4 siRNA (m) is recommended for the inhibition of TCF-4 expression in mouse 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

TCF-4 (D-4): sc-166699 is recommended as a control antibody for monitoring of TCF-4 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<sup>™</sup> Molecular Weight Standards: sc-2035, UltraCruz<sup>®</sup> 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<sup>®</sup> Mounting Medium: sc-24941 or UltraCruz<sup>®</sup> Hard-set Mounting Medium: sc-359850.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TCF-4 gene expression knockdown using RT-PCR Primer: TCF-4 (m)-PR: sc-43526-PR (20  $\mu$ l, 596 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Cironi, L., et al. 2016. The fusion protein SS18-SSX1 employs core Wnt pathway transcription factors to induce a partial Wnt signature in synovial sarcoma. *Sci. Rep.* 6: 22113.
2. Ahluwalia, A., et al. 2020. Mechanisms by which membrane and nuclear ER $\alpha$  inhibit adipogenesis in cells isolated from female mice. *Endocrinology* 161: bqaa175.
3. Li, J., et al. 2021. Aberrant Gcm1 expression mediates Wnt/ $\beta$ -catenin pathway activation in folate deficiency involved in neural tube defects. *Cell Death Dis.* 12: 234.

## RESEARCH USE

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