SANTA CRUZ BIOTECHNOLOGY, INC.

FRAT1 siRNA (h): sc-105373

BACKGROUND

FRAT1 and FRAT2 were originally characterized as proteins frequently rearranged in advanced T cell lymphoma, and they have since been identified as proto-oncogenes involved in tumorigenesis. These proteins share significant homology with the *Xenopus* glycogen synthase kinase-3 (xGSK-3) binding protein, which is designated GBP and is essential for the formation of the dorsal-ventral axis during embryonic development. Establishment of these embryonic axes is mediated by the Wnt intracellular signaling pathway. Wnt signaling is regulated in part by the activity of GSK-3, which phosphorylates and thereby facilitates the degradation of β-catenin. GBP binds to GSK-3 and inhibits this phosphorylation, resulting in the accumulation of β-catenin and the subsequent transcription of Wnt target genes. Like GBP, FRAT2 has been shown to bind xGSK-3, suggesting that FRAT1 and FRAT2 may be GSK-3 regulatory proteins.

REFERENCES

1. Yost, C., et al. 1996. The axis-inducing activity, stability, and subcellular distribution of β-catenin is regulated in *Xenopus* embryos by glycogen synthase kinase 3. Genes Dev. 10: 1443-1454.
2. Jonkers, J., et al. 1997. Activation of a novel proto-oncogene, FRAT1, contributes to progression of mouse T-cell lymphomas. EMBO J. 16: 441-450.
3. Aberle, H., et al. 1997. β-catenin is a target for the ubiquitin-proteasome pathway. EMBO J. 16: 3797-3804.
4. Yost, C., et al. 1998. GBP, an inhibitor of GSK-3, is implicated in *Xenopus* development and oncogenesis. Cell 93: 1031-1041.
5. Sumoy, L., et al. 1999. Conservation of intracellular Wnt signaling components in dorsal-ventral axis formation in zebrafish. Dev. Genes Evol. 209: 48-58.
6. Li, L., et al. 1999. Axin and FRAT1 interact with dvl and GSK, bridging Dvl to GSK in Wnt-mediated regulation of LEF-1. EMBO J. 18: 4233-4240.

CHROMOSOMAL LOCATION

Genetic locus: FRAT1 (human) mapping to 10q24.1.

PRODUCT

FRAT1 siRNA (h) is a pool of 2 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 FRAT1 shRNA Plasmid (h): sc-105373-SH and FRAT1 shRNA (h) Lentiviral Particles: sc-105373-V as alternate gene silencing products.

For independent verification of FRAT1 (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-105373A and sc-105373B.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

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

FRAT1 siRNA (h) is recommended for the inhibition of FRAT1 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor FRAT1 gene expression knockdown using RT-PCR Primer: FRAT1 (h)-PR: sc-105373-PR (20 µl). 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.