

FRS2 siRNA (m): sc-35414

BACKGROUND

FRS2 (also designated SNT or p90) is a lipid-anchored docking protein that becomes tyrosine phosphorylated in response to FGF or NGF stimulation and subsequently binds to GRB2/Sos complexes. The GRB2 adapter protein links receptor tyrosine kinases to the Ras/MAPK signaling pathway but does not interact directly with FGF receptors. FRS2 thus provides a link between activation of FGF and NGF receptors and the Ras/MAPK pathway. FRS2 contains four GRB2 binding sites, a myristylation sequence and a PTP domain. Myristylation of FRS2 is essential for membrane localization, tyrosine phosphorylation, GRB2/Sos recruitment and MAPK activation. The function of FRS2 in FGF receptor signaling is analogous to that of IRS1 in response to Insulin receptor stimulation.

REFERENCES

1. Clark, S.G., et al. 1992. *C. elegans* cell-signaling gene Sem-5 encodes a protein with SH2 and SH3 domains. *Nature* 356: 340-344.
2. Lowenstein, E.J., et al. 1992. The SH2 and SH3 domain-containing protein GRB2 links receptor tyrosine kinases to Ras signaling. *Cell* 70: 431-442.
3. Skolnik, E.Y., et al. 1993. The function of GRB2 in linking the Insulin receptor to Ras signaling pathways. *Science* 260: 1953-1955.
4. Rabin, S.J., et al. 1993. SNT, a differentiation-specific target of neurotrophic factor-induced tyrosine kinase activity in neurons and PC-12 cells. *Mol. Cell. Biol.* 13: 2203-2213.
5. Ong, S.H., et al. 1996. Suc1-associated neurotrophic factor target (SNT) protein is a major FGF-stimulated tyrosine phosphorylated 90-kDa protein which binds to the SH2 domain of GRB2. *Biochem. Biophys. Res. Commun.* 225: 1021-1026.
6. Kouhara, H., et al. 1997. A lipid-anchored GRB2-binding protein that links FGF-receptor activation to the Ras/MAPK signaling pathway. *Cell* 89: 693-702.
7. Ong, S.H., et al. 1997. SHP2 associates directly with tyrosine phosphorylated p90 (SNT) protein in FGF-stimulated cells. *Biochem. Biophys. Res. Commun.* 238: 261-266.

CHROMOSOMAL LOCATION

Genetic locus: *Frs2* (mouse) mapping to 10 D2.

PRODUCT

FRS2 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see FRS2 shRNA Plasmid (m): sc-35414-SH and FRS2 shRNA (m) Lentiviral Particles: sc-35414-V as alternate gene silencing products.

For independent verification of FRS2 (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-35414A, sc-35414B and sc-35414C.

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

APPLICATIONS

FRS2 siRNA (m) is recommended for the inhibition of FRS2 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 μ M in 66 μ 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

FRS2 (A-5): sc-17841 is recommended as a control antibody for monitoring of FRS2 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 κ BP-HRP: sc-516102 or m-IgG κ 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 κ BP-FITC: sc-516140 or m-IgG κ 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 FRS2 gene expression knockdown using RT-PCR Primer: FRS2 (m)-PR: sc-35414-PR (20 μ l, 596 bp). 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 for detailed protocols and support products.