

FRS2 (G-20): sc-51491

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 IRS-1 in response to Insulin receptor stimulation.

REFERENCES

- 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.
- 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.
- Skolnik, E.Y., et al. 1993. The function of GRB2 in linking the Insulin receptor to Ras signaling pathways. *Science* 260: 1953-1955.
- 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.
- 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.
- 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.
- 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.

CHROMOSOMAL LOCATION

Genetic locus: FRS2 (human) mapping to 12q15; Frs2 (mouse) mapping to 10 D2.

SOURCE

FRS2 (G-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of FRS2 of human origin.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PROTOCOLS

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

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-51491 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

FRS2 (G-20) is recommended for detection of FRS2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

FRS2 (G-20) is also recommended for detection of FRS2 in additional species, including equine, canine, bovine, porcine and avian.

Suitable for use as control antibody for FRS2 siRNA (h): sc-35413, FRS2 siRNA (m): sc-35414, FRS2 shRNA Plasmid (h): sc-35413-SH, FRS2 shRNA Plasmid (m): sc-35414-SH, FRS2 shRNA (h) Lentiviral Particles: sc-35413-V and FRS2 shRNA (m) Lentiviral Particles: sc-35414-V.

Molecular Weight of phosphorylated FRS2: 60-90 kDa.

Positive Controls: NIH/3T3 whole cell lysate: sc-2210, ECV304 cell lysate: sc-2269 or MIA PaCa-2 cell lysate: sc-2285.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

SELECT PRODUCT CITATIONS

- Liu, C., et al. 2010. The interaction of Epac1 and Ran promotes Rap1 activation at the nuclear envelope. *Mol. Cell. Biol.* 30: 3956-3969.

RESEARCH USE

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



Try **FRS2 (A-5): sc-17841**, our highly recommended monoclonal alternative to FRS2 (G-20). Also, for AC, HRP, FITC, PE, Alexa Fluor® 488 and Alexa Fluor® 647 conjugates, see **FRS2 (A-5): sc-17841**.