SANTA CRUZ BIOTECHNOLOGY, INC.

GIPC siRNA (h): sc-35475

BACKGROUND

GIPC, for GAIP interacting protein at the C terminus (also designated SEMCAP-1 or synectin), is a PDZ domain containing protein that interacts with RGS-GAIP, a GTPase-activating protein (GAP) for $G_{\alpha i}$ subunits. GIPC was also identified as TIP-2, a protein that interacts with the viral oncoprotein TAX, which transactivates viral and cellular promoters through interactions with various transcription factors. PDZ domain containing proteins are primarily localized to cell-cell junctions in epithelial cells and neurons where they coordinate the assembly of multiprotein complexes. GIPC specifically localizes to clusters of vesicles near the plasma membrane and participates in G protein-coupled signaling pathway involved in regulating clathrin-coated vesicular trafficking. GIPC also associates with membrane bound semaphorin F (M-SemF), which is involved in neuronal axon growth, and it appears to regulate the subcellular distribution of M-SemF in the brain.

REFERENCES

1. Ranganathan, R., et al. 1997. PDZ domain proteins: scaffolds for signaling complexes. Curr. Biol. 7: R770-R773.
2. De Vries, L., et al. 1998. GIPC, a PDZ domain containing protein, interacts specifically with the C terminus of RGS-GAIP. Proc. Natl. Acad. Sci. USA 95: 12340-12345.
3. Rousset, R., et al. 1998. The C terminus of the HTLV-1 TAX oncoprotein mediates interaction with the PDZ domain of cellular proteins. Oncogene 16: 643-654.
4. Cai, H., et al. 1999. Cloning and characterization of neuropilin-1-interacting protein: a PSD-95/Dlg/ZO-1 domain-containing protein that interacts with the cytoplasmic domain of neuropilin-1. J. Neurosci. 19: 6519-6527.

CHROMOSOMAL LOCATION

Genetic locus: GIPC1 (human) mapping to 19p13.12.

PRODUCT

GIPC 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see GIPC shRNA Plasmid (h): sc-35475-SH and GIPC shRNA (h) Lentiviral Particles: sc-35475-V as alternate gene silencing products.

For independent verification of GIPC (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-35475A, sc-35475B and sc-35475C.

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

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

GENE EXPRESSION MONITORING

GIPC (B-12): sc-271822 is recommended as a control antibody for monitoring of GIPC 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 GIPC gene expression knockdown using RT-PCR Primer: GIPC (h)-PR: sc-35475-PR (20 µl, 539 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Wang, L., et al. 2006. C terminus of RGS-GAIP-interacting protein conveys neuropilin-1-mediated signaling during angiogenesis. FASEB J. 20: 1513-1515.
2. Wang, L., et al. 2007. Neuropilin-1 modulates p53/caspases axis to promote endothelial cell survival. PLoS ONE 2: e1161.
3. Choi, J.S., et al. 2010. GIPC mediates the generation of reactive oxygen species and the regulation of cancer cell proliferation by Insulin-like growth factor-1/IGF-1R signaling. Cancer Lett. 294: 254-263.

RESEARCH USE

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