



GGA2 siRNA (h): sc-41169

BACKGROUND

A family of proteins, the GGAs (Golgi-localized, γ -adaptin ear-containing, ARF-binding proteins) sequences that showed significant homology to the carboxy-terminal "ear" domain of γ -adaptin. Members of the GGA family (GGA1, GGA2 (also known as VEAR or VHS domain and ear domain of γ -adaptin) and GGA3) are ubiquitous coat proteins that facilitate the trafficking of proteins between the *trans*-Golgi network and the lysosome. However, unlike γ -adaptin, the GGAs are not associated with clathrin-coated vesicles or with any of the components of the AP-1 complex. GGA1 and GGA2 are also not associated with each other, although they colocalize on perinuclear membranes. GGA2 shares 45% amino acid sequence identity with GGA1 and 35% with GGA3. In addition to being involved in heterotypic vesicle/suborganelle interactions associated with the Golgi complex, GGA2 may have a tissue-specific function and is highly expressed in kidney, muscle and heart. Furthermore, the VHS domain of GGA2 binds to the acidic cluster-di-leucine motif in the cytoplasmic tail of the cation-independent mannose 6-phosphate receptor (CI-MPR) and this is important for lysosomal enzyme targeting.

REFERENCES

1. Hirst, J., et al. 2000. A family of proteins with γ -adaptin and VHS domains that facilitate trafficking between the *trans*-Golgi network and the vacuole/lysosome. *J. Cell Biol.* 149: 67-80.
2. Poussu, A., et al. 2000. Vear, a novel Golgi-associated protein with VHS and γ -adaptin "ear" domains. *J. Biol. Chem.* 275: 7176-7183.
3. Nielsen, M.S., et al. 2001. The sortilin cytoplasmic tail conveys Golgi-endosome transport and binds the VHS domain of the GGA2 sorting protein. *EMBO J.* 20: 2180-2190.
4. Zhu, Y., et al. 2001. Binding of GGA2 to the lysosomal enzyme sorting motif of the mannose 6-phosphate receptor. *Science* 292: 1716-1718.

CHROMOSOMAL LOCATION

Genetic locus: GGA2 (human) mapping to 16p12.2.

PRODUCT

GGA2 siRNA (h) is a target-specific 19-25 nt siRNA 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 GGA2 shRNA Plasmid (h): sc-41169-SH and GGA2 shRNA (h) Lentiviral Particles: sc-41169-V as alternate gene silencing 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 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

GGA2 siRNA (h) is recommended for the inhibition of GGA2 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 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

GGA2 (E-3): sc-133147 is recommended as a control antibody for monitoring of GGA2 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 λ BP-HRP: sc-516132 or m-IgG λ BP-HRP (Cruz Marker): sc-516132-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 λ BP-FITC: sc-516185 or m-IgG λ BP-PE: sc-516186 (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 GGA2 gene expression knockdown using RT-PCR Primer: GGA2 (h)-PR: sc-41169-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Guida, N., et al. 2021. The transcriptional complex Sp1/KMT2A by up-regulating restrictive element 1 silencing transcription factor accelerates methylmercury-induced cell death in motor neuron-like NSC34 cells over-expressing SOD1-G93A. *Front. Neurosci.* 15: 771580.

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.