



# GGA3 siRNA (m): sc-61343

## BACKGROUND

The GGA family of proteins (Golgi-localized,  $\gamma$ -Adaptin ear-containing, ARF-binding proteins) are ubiquitous coat proteins that facilitate the trafficking of soluble proteins from the *trans*-Golgi network (TGN) to endosomes/lysosomes by means of interactions with TGN-sorting receptors, ARF (ADP-ribosylation factor), and clathrin. Members of the GGA family, GGA1, GGA2 (also known as VEAR) and GGA3, are multi-domain proteins that bind mannose 6-phosphate receptors (MPRs). GGAs have modular structures with an N-terminal VHS (VPS27, Hrs and STAM) domain followed by a GAT (GGA and Tom1) domain, a connecting hinge segment and a C-terminal GAE ( $\gamma$ -Adaptin ear) domain. The amino-terminal VHS domains of GGAs form complexes with the cytoplasmic domains of sorting receptors by recognizing acidic-cluster dileucine (ACLL) sequences. The human GGA3 gene maps to chromosome 17q25.1 and encodes a 723 amino acid protein that shares 46% sequence identity with GGA1 and 38% with GGA2.

## REFERENCES

1. Hirst, J., et al. 2000. A family of proteins with  $\gamma$ -Adaptin and VHS domains that facilitate trafficking between the *trans*-Golgi network and the vacuole/lysosome. *J. Cell Biol.* 149: 67-80.
2. Dell'Angelica, E.C., et al. 2000. GGAs: a family of ADP ribosylation factor-binding proteins related to adaptors and associated with the Golgi complex. *J. Cell Biol.* 149: 81-94.
3. Shiba, T., et al. 2002. Structural basis for recognition of acidic-cluster dileucine sequence by GGA1. *Nature* 415: 937-941.
4. Doray, B., et al. 2002. Cooperation of GGAs and AP-1 in packaging MPRs at the *trans*-Golgi network. *Science* 297: 1700-1703.
5. Doray, B., et al. 2002. Autoinhibition of the ligand-binding site of GGA1/3 VHS domains by an internal acidic cluster-dileucine motif. *Proc. Natl. Acad. Sci. USA* 99: 8072-8077.
6. Takatsu, H., et al. 2002. GGA proteins associate with Golgi membranes through interaction between their GGAH domains and ADP-ribosylation factors. *Biochem. J.* 365: 369-378.
7. LocusLink Report (LocusID: 606004).  
<http://www.ncbi.nlm.nih.gov/LocusLink/>

## CHROMOSOMAL LOCATION

Genetic locus: Gga3 (mouse) mapping to 11 E2.

## PRODUCT

GGA3 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see GGA3 shRNA Plasmid (m): sc-61343-SH and GGA3 shRNA (m) Lentiviral Particles: sc-61343-V as alternate gene silencing products.

For independent verification of GGA3 (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-61343A, sc-61343B and sc-61343C.

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

## APPLICATIONS

GGA3 siRNA (m) is recommended for the inhibition of GGA3 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  $\mu$ M in 66  $\mu$ 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.

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor GGA3 gene expression knockdown using RT-PCR Primer: GGA3 (m)-PR: sc-61343-PR (20  $\mu$ l). 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](http://www.scbt.com) for detailed protocols and support products.