

# COG4 siRNA (h): sc-93069

## BACKGROUND

The structure and function of the Golgi apparatus is controlled by a number of multi-protein complexes that are involved in glycosylation reactions and vesicular transport. The conserved oligomeric Golgi (COG) complex consists of three subcomplexes, termed LDLC, SEC34 and GTT (Golgi transport complex), all of which contain proteins necessary for proper Golgi operation. COG4 (component of oligomeric golgi complex 4), also known as COD1 or conserved oligomeric Golgi complex subunit 4, is a 785 amino acid peripheral membrane protein that localizes to the cytoplasmic side of the Golgi apparatus membrane. Existing as three alternatively spliced isoforms, COG4 is essential for normal Golgi function and defects in its gene are associated with congenital disorder of glycosylation type IIj.

## REFERENCES

- Whyte, J.R. and Munro, S. 2001. The Sec34/35 Golgi transport complex is related to the exocyst, defining a family of complexes involved in multiple steps of membrane traffic. *Dev. Cell* 1: 527-537.
- Ungar, D., Oka, T., Brittle, E.E., Vasile, E., Lupashin, V.V., Chatterton, J.E., Heuser, J.E., Krieger, M. and Waters, M.G. 2002. Characterization of a mammalian Golgi-localized protein complex, COG, that is required for normal Golgi morphology and function. *J. Cell Biol.* 157: 405-415.
- Laufman, O., Kedan, A., Hong, W. and Lev, S. 2009. Direct interaction between the COG complex and the SM protein, Sly1, is required for Golgi SNARE pairing. *EMBO J.* 28: 2006-2017.
- Reynders, E., Foulquier, F., Leão Teles, E., Quelhas, D., Morelle, W., Rabouille, C., Annaert, W. and Matthijs, G. 2009. Golgi function and dysfunction in the first COG4-deficient CDG type II patient. *Hum. Mol. Genet.* 18: 3244-3256.
- Richardson, B.C., Smith, R.D., Ungar, D., Nakamura, A., Jeffrey, P.D., Lupashin, V.V. and Hughson, F.M. 2009. Structural basis for a human glycosylation disorder caused by mutation of the COG4 gene. *Proc. Natl. Acad. Sci. USA* 106: 13329-13334.
- Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 2010. Johns Hopkins University, Baltimore, MD. MIM Number: 606976. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>

## CHROMOSOMAL LOCATION

Genetic locus: COG4 (human) mapping to 16q22.1.

## PRODUCT

COG4 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see COG4 shRNA Plasmid (h): sc-93069-SH and COG4 shRNA (h) Lentiviral Particles: sc-93069-V as alternate gene silencing products.

For independent verification of COG4 (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-93069A, sc-93069B and sc-93069C.

## 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

COG4 siRNA (h) is recommended for the inhibition of COG4 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  $\mu$ 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 COG4 gene expression knockdown using RT-PCR Primer: COG4 (h)-PR: sc-93069-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.