

# γ2-COP siRNA (h): sc-41204

## BACKGROUND

In eukaryotes, membrane and vesicular trafficking in the early secretory pathway are mediated by non-Clathrin COP (coat protein) I-coated vesicles. The COP I protein (also designated coatamer) is composed of seven subunits, designated COPA, COPB, β'-COP, COPG, COPD, COPE and COPZ. COP I binds both to the dilysine motif of resident membrane proteins of the endoplasmic reticulum and to the cytoplasmic domain of p23, a membrane protein of COP I vesicles. This binding is exclusively mediated by COPG. COPG exists as two distinct isoforms, COPG (also known as γ1-COP) and γ2-COP. γ2-COP is ubiquitously transcribed in fetal and adult tissues. In fetal tissues, including skeletal muscle, skin, kidney, adrenal gland, placenta, intestine, lung, chorionic plate and amnion, γ2-COP is imprinted and expressed from the paternal allele. In contrast, it is biallelically expressed in fetal brain and liver and in adult peripheral blood. Both COPG and γ2-COP can directly interact with COPz1 and COPz2 and can also form a complex with COPB *in vivo*, which interacts with the cytoplasmic domain of p23. γ2-COP can form a COP I-like complex, which is functionally redundant to COP I complex.

## REFERENCES

1. Stenbeck, G., et al. 1992. γ-COP, a coat subunit of non-Clathrin-coated vesicles with homology to Sec21p. *FEBS Lett.* 314: 195-198.
2. Lowe, M. and Kreis, T.E. 1995. *In vitro* assembly and disassembly of coatamer. *J. Biol. Chem.* 270: 31364-31371.
3. Harter, C. and Wieland, F.T. 1998. A single binding site for dilysine retrieval motifs and p23 within the γ subunit of coatamer. *Proc. Natl. Acad. Sci. USA* 95: 11649-11654.
4. Glagitko, N., et al. 1999. γ2-COP, a novel imprinted gene on chromosome 7q32, defines a new imprinting cluster in the human genome. *Hum. Mol. Genet.* 8: 2387-2396.
5. Contrears I., et al. 2000. Characterization of Cop I coat proteins in plant cells. *Biochem. Biophys. Res. Commun.* 273: 76-82.
6. Futatsumori, M., et al. 2000. Identification and characterization of novel isoforms of COP I subunits. *J. Biochem.* 128: 793-801.

## CHROMOSOMAL LOCATION

Genetic locus: COPG2 (human) mapping to 7q32.2.

## PRODUCT

γ2-COP 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 γ2-COP shRNA Plasmid (h): sc-41204-SH and γ2-COP shRNA (h) Lentiviral Particles: sc-41204-V as alternate gene silencing products.

For independent verification of γ2-COP (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-41204A, sc-41204B and sc-41204C.

## 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

γ2-COP siRNA (h) is recommended for the inhibition of γ2-COP 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

COPG (H-4): sc-271362 is recommended as a control antibody for monitoring of γ2-COP 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 γ2-COP gene expression knockdown using RT-PCR Primer: γ2-COP (h)-PR: sc-41204-PR (20 μl). 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.