SANTA CRUZ BIOTECHNOLOGY, INC.

Peroxin 16 siRNA (h): sc-96993

BACKGROUND

Peroxisomes are single-membrane bound organelles present in virtually all eukaryotic cells. They are involved in numerous catabolic and anabolic pathways, including beta-oxidation of very long chain fatty acids, metabolism of hydrogen peroxide, plasmalogen biosynthesis and bile acid synthesis. The Peroxin gene family, which includes more than 20 members, is required for peroxisome biogenesis. Peroxin 16, also known as PEX16 or Peroxisomal biogenesis factor 16, is a 336 amino acid multi-membrane protein that has a critical role in the biogenesis of peroxisomes. Defects in the gene encoding Peroxin 16 are the cause of multiple peroxisome-related disorders, including Zellweger syndrome (ZWS), neonatal adrenoleukodystrophy (NALD), infantile Refsum disease (IRD), classical rhizomelic chondrodysplasia punctata (RCDP) and peroxisome biogenesis disorder complementation group 9 (PBD-CG9).

REFERENCES

1. Suzuki, Y., et al. 1993. Clinical and molecular aspects of peroxisome-deficient disorders. Nippon Rinsho 51: 2353-2358.
2. Fujiki, Y. 1994. Human peroxisome-deficient disorders and pathogenic gene. Rinsho Shinkeigaku 34: 1219-1221.
3. Moser, A.B., et al. 1995. Phenotype of patients with peroxisomal disorders subdivided into sixteen complementation groups. J. Pediatr. 127: 13-22.
4. Distel, B., et al. 1996. A unified nomenclature for peroxisome biogenesis factors. J. Cell Biol. 135: 1-3.
5. Shimozawa, N., et al. 2002. A novel aberrant splicing mutation of the PEX16 gene in two patients with Zellweger syndrome. Biochem. Biophys. Res. Commun. 292: 109-112.
6. Karnik, S.K. and Trelease, R.N. 2005. Arabidopsis peroxin 16 coexists at steady state in peroxisomes and endoplasmic reticulum. Plant Physiol. 138: 1967-1981.
7. Mullen, R.T. and Trelease, R.N. 2006. The ER-peroxisome connection in plants: development of the "ER semi-autonomous peroxisome maturation and replication" model for plant peroxisome biogenesis. Biochim. Biophys. Acta 1763: 1655-1668.

CHROMOSOMAL LOCATION

Genetic locus: PEX16 (human) mapping to 11p11.2.

PRODUCT

Peroxin 16 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 Peroxin 16 shRNA Plasmid (h): sc-96993-SH and Peroxin 16 shRNA (h) Lentiviral Particles: sc-96993-V as alternate gene silencing products.

For independent verification of Peroxin 16 (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-96993A, sc-96993B and sc-96993C.

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

Peroxin 16 siRNA (h) is recommended for the inhibition of Peroxin 16 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

Peroxin 16 (H-4): sc-398189 is recommended as a control antibody for monitoring of Peroxin 16 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 Peroxin 16 gene expression knockdown using RT-PCR Primer: Peroxin 16 (h)-PR: sc-96993-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Wei, X., et al. 2021. Knockdown of PEX16 induces autophagic degradation of peroxisomes. Int. J. Mol. Sci. 22: 7989.

RESEARCH USE

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