SANTA CRUZ BIOTECHNOLOGY, INC.

PEG3 siRNA (h): sc-97350

BACKGROUND

Paternally-expressed gene 3 protein (PEG3), also known as PW1 or ZSCAN24, is a 1,588 amino acid protein that localizes to the nucleus and cytoplasm. The PEG3 gene, which is thought to encode a transcription factor, is an imprinted gene that is expressed from the paternal allele in embryos. A member of the Krüppel C_2H_2-type zinc-finger protein family, PEG3 is highly expressed in brain, astrocytes, glial cells, uterus, embroyo, placenta, ovary and testis. In neurons with DNA damage, PEG3, in cooperation with SIAH-1, interacts with p53, c-Myc and Bax to induce apoptosis. Also, PEG3 associates specifically with TRAF2 to activate NFκB p50 and thus inhibit TNF-induced apoptosis. Three isoforms of PEG3 are expressed due to alternative splicing events.

REFERENCES

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2. Relaix, F., et al. 1998. PEG3/PW1 is an imprinted gene involved in the TNF-NFκB signal transduction pathway. Nat. Genet. 18: 287-291.
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4. Kohda, T., et al. 2001. Tumour suppressor activity of human imprinted gene PEG3 in a glioma cell line. Genes Cells 6: 237-247.
5. Hiby, S.E., et al. 2001. Paternal monoallelic expression of PEG3 in the human placenta. Hum. Mol. Genet. 10: 1093-1100.
6. Yamaguchi, A., et al. 2002. PEG3/PW1 is involved in p53-mediated cell death pathway in brain ischemia/hypoxia. J. Biol. Chem. 277: 623-629.
7. Johnson, M.D., et al. 2002. PEG3/PW1 is a mediator between p53 and Bax in DNA damage-induced neuronal death. J. Biol. Chem. 277: 23000-23007.
8. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 601483. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: PEG3 (human) mapping to 19q13.43.

PRODUCT

PEG3 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 PEG3 shRNA Plasmid (h): sc-97350-SH and PEG3 shRNA (h) Lentiviral Particles: sc-97350-V as alternate gene silencing products.

For independent verification of PEG3 (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-97350A, sc-97350B and sc-97350C.

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

PEG3 siRNA (h) is recommended for the inhibition of PEG3 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PEG3 gene expression knockdown using RT-PCR Primer: PEG3 (h)-PR: sc-97350-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. Poluzzi, C., et al. 2014. Endorepellin evokes autophagy in endothelial cells. J. Biol. Chem. 289: 16114-16128.
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3. Goyal, A., et al. 2014. Reprint of: decorin activates AMPK, an energy sensor kinase, to induce autophagy in endothelial cells. Matrix Biol. 35: 42-50.
4. Neill, T., et al. 2017. Decorin-evoked paternally expressed gene 3 (PEG3) is an upstream regulator of the transcription factor EB (TFEB) in endothelial cell autophagy. J. Biol. Chem. 292: 16211-16220.
5. Neill, T., et al. 2020. Catabolic degradation of endothelial VEGFA via autophagy. J. Biol. Chem. 295: 6064-6079.

RESEARCH USE

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