SANTA CRUZ BIOTECHNOLOGY, INC.

APEG1 siRNA (h): sc-94384

BACKGROUND

APEG1 (aortic preferentially expressed protein 1), also known as SPEG (striated muscle preferentially expressed protein kinase) or nuclear protein, marker for differentiated aortic smooth muscle and down-regulated with vascular injury, is a 3,267 amino acid protein that belongs to the protein kinase superfamily and the CAMK serine/threonine protein kinase family. Encoded by a gene that maps to human chromosome 2q35, APEG1 is phosphorylated upon DNA damage, likely by Atm or ATR, and may also be autophosphorylated. APEG1 contains two fibronectin type-III domains, nine Ig-like (immunoglobulin-like) domains, two protein kinase domains and exists as four alternatively spliced isoforms. Isoform 1 is preferentially expressed in striated muscle, while isoform 3, a non-kinase monomer or homodimer, is exclusively expressed in normal vessel walls of highly differentiated aortic smooth muscle cells (ASMC), which are linked to vascular injury response and arteriosclerosis. Isoform 3 is also down-regulated in dedifferentiated ASMC *in vivo*. APEG1 may assist in growth regulation and differentiation of arterial smooth muscle cells.

REFERENCES

1. Hsieh, C.M., et al. 1996. APEG-1, a novel gene preferentially expressed in aortic smooth muscle cells, is down-regulated by vascular injury. J. Biol. Chem. 271: 17354-17359.
2. Hsieh, C.M., et al. 1999. Genomic cloning and promoter analysis of aortic preferentially expressed gene-1. Identification of a vascular smooth muscle-specific promoter mediated by an E box motif. J. Biol. Chem. 274: 14344-14351.
3. Hsieh, C.M., et al. 2000. Striated muscle preferentially expressed genes α and β are two serine/threonine protein kinases derived from the same gene as the aortic preferentially expressed gene-1. J. Biol. Chem. 275: 36966-36973.
4. Manjasetty, B.A., et al. 2005. X-ray structure of engineered human aortic preferentially expressed protein-1 (APEG-1). BMC Struct. Biol. 5: 21.
5. Arvanitis, D.A., et al. 2005. Genomic rearrangements on VCAM1, SELE, APEG1and AIF1 loci in atherosclerosis. J. Cell. Mol. Med. 9: 153-159.
6. Mahoney, W.M., et al. 2005. Defining smooth muscle cells and smooth muscle injury. J. Clin. Invest. 115: 221-224.

CHROMOSOMAL LOCATION

Genetic locus: SPEG (human) mapping to 2q35.

PRODUCT

APEG1 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 APEG1 shRNA Plasmid (h): sc-94384-SH and APEG1 shRNA (h) Lentiviral Particles: sc-94384-V as alternate gene silencing products.

For independent verification of APEG1 (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-94384A, sc-94384B and sc-94384C.

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

APEG1 siRNA (h) is recommended for the inhibition of APEG1 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 APEG1 gene expression knockdown using RT-PCR Primer: APEG1 (h)-PR: sc-94384-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 for detailed protocols and support products.