SANTA CRUZ BIOTECHNOLOGY, INC.

# PTEN siRNA (m): sc-36326

## BACKGROUND

As human tumors progress to advanced stages, one genetic alteration that occurs at high frequency is a loss of heterozygosity (LOH) at chromosome 10q23. Mapping of homozygous deletions on this chromosome led to the isolation of the PTEN gene, also designated MMAC1 (for mutated in multiple advanced cancers) and TEP1. This candidate tumor suppressor gene exhibits a high frequency of mutations in human glioblastomas and is also mutated in other cancers, including sporadic brain, breast, kidney and prostate cancers. PTEN has been associated with Cowden disease, an autosomal dominant cancer predisposition syndrome. The PTEN gene product is a putative protein tyrosine phosphatase that is localized to the cytoplasm and shares extensive homology with the cytoskeletal proteins tensin and auxilin. Gene transfer studies have indicated that the phosphatase domain of PTEN is essential for growth suppression of glioma cells.

## REFERENCES


1. Bigner, S.H., et al. 1988. Specific chromosomal abnormalities in malignant human gliomas. Cancer Res. 48: 405-411.
2. James, C.D., et al. 1988. Clonal genomic alterations in glioma malignancy stages. Cancer Res. 48: 5546-5551.
3. Steck, P.A., et al. 1997. Identification of a candidate tumour suppressor gene, MMAC1, at chromosome 10q23.3 that is mutated in multiple advanced cancers. Nat. Genet. 15: 356-362.


## CHROMOSOMAL LOCATION

Genetic locus: Pten (mouse) mapping to 19 C1.

## PRODUCT

PTEN siRNA (m) 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 PTEN shRNA Plasmid (m): sc-36326-SH and PTEN shRNA (m) Lentiviral Particles: sc-36326-V as alternate gene silencing products.

For independent verification of PTEN (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-36326A, sc-36326B and sc-36326C.

## 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

PTEN siRNA (m) is recommended for the inhibition of PTEN expression in mouse 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

PTEN (A2B1): sc-7974 is recommended as a control antibody for monitoring of PTEN 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).

## RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PTEN gene expression knockdown using RT-PCR Primer: PTEN (m)-PR: sc-36326-PR (20 µl, 446 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS


1. Xu, X., et al. 2006. Induction of intrahepatic cholangiocellular carcinoma by liver-specific disruption of Smad4 and PTEN in mice. J. Clin. Invest. 116: 1843-1852.
2. Barbieri, S.S., et al. 2008. Suppressing PTEN activity by tobacco smoke plus interleukin-1β modulates dissociation of VE-cadherin/β-catenin complexes in endothelium. Arterioscler. Thromb. Vasc. Biol. 28: 732-738.
3. Yang, S. and Kim, H.M. 2012. The RhoA-ROCK-PTEN pathway as a molecular switch for anchorage dependent cell behavior. Biomaterials 33: 2902-2915.
4. Xing, L., et al. 2015. PTEN inhibits high glucose-induced phenotypic transition in podocytes. J. Cell. Biochem. 116: 1776-1784.
5. Palliyaguru, D.L., et al. 2016. Withaferin A induces Nrf2-dependent protection against liver injury: role of Keap1-independent mechanisms. Free Radic. Biol. Med. 101: 116-128.
6. Kim, H.S., et al. 2017. PTEN drives Th17 cell differentiation by preventing IL-2 production. J. Exp. Med. 214: 3381-3398.
7. Mun, H., et al. 2020. The autophagy regulator p62 controls PTEN-dependent ciliogenesis. Front. Cell Dev. Biol. 8: 465.
8. Shen, Y., et al. 2021. Phosphatase and tensin homolog deleted on chromosome ten knockdown attenuates cognitive deficits by inhibiting neuroinflammation in a mouse model of perioperative neurocognitive disorder. Neuroscience 468: 199-210.


## RESEARCH USE

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