

PTEN Knockout HeLa Cell Line, Homozygous

Catalog No.: RM01836

Basic Information

Catalog No.

RM01836

Category

Cell Line

Parental Cell line

HeLa

Genotype

Knockout

Gene Information

Gene Symbol

PTEN

Species

Human

Gene ID

5728

Swiss Prot

P60484

Synonyms

10q23del; BZS; CWS1; DEC; GLM2;
MHAM; MMAC1; PTEN1; TEP1

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Background

This gene was identified as a tumor suppressor that is mutated in a large number of cancers at high frequency. The protein encoded by this gene is a phosphatidylinositol-3,4,5-trisphosphate 3-phosphatase. It contains a tensin like domain as well as a catalytic domain similar to that of the dual specificity protein tyrosine phosphatases. Unlike most of the protein tyrosine phosphatases, this protein preferentially dephosphorylates phosphoinositide substrates. It negatively regulates intracellular levels of phosphatidylinositol-3,4,5-trisphosphate in cells and functions as a tumor suppressor by negatively regulating AKT/PKB signaling pathway. The use of a non-canonical (CUG) upstream initiation site produces a longer isoform that initiates translation with a leucine, and is thought to be preferentially associated with the mitochondrial inner membrane. This longer isoform may help regulate energy metabolism in the mitochondria. A pseudogene of this gene is found on chromosome 9. Alternative splicing and the use of multiple translation start codons results in multiple transcript variants encoding different isoforms.

Product Information

Description

PTEN Knockout cell line is engineered from HeLa cell line with Gene-Editing Technology.

Allele-1:4bp deletion in exon5

Allele-2:4bp deletion in exon5

Mammalian cells such as human, rat and mouse cells are normally diploid with two alleles. Homozygote: both alleles were knocked out, mRNA has no signal, no expression of proteins. Heterozygote: only one allele was knocked out, the mRNA transcript levels was decreased compared to wild type, and the protein expression levels was also lower than that of the wild type.

Packaging

1 vial parental cell line and 1 vial knockout cell line

Shipping Conditions

Dry ice

Amount

1~5x10⁶ cells/vial.

Storage

Stored in liquid nitrogen for a long time less than -130°C. Minimizing freeze-thaw cycles.

Protocol

Upon arrival, it should be maintained in DMEM medium with 10%(v/v) fetal bovine serum and 100U penicillin-streptomycin, at 37°C with 5% CO₂ condition.

1. Thaw the vial in 37°C water bath, and shake it to melt as soon as possible.
2. Transfer the cell suspension to a 15mL conical tube with pre-warmed 5mL complete medium and centrifuge 1000rpm for approximately 5 minutes at room temperature.
3. Remove and discard the supernatant.
4. Resuspend the cell pellet with 1mL pre-warmed complete medium and seed in 10cm dish.
5. Add 8-10mL of complete medium.
6. Incubate the culture at 37°C incubator with 5% CO₂.
7. A subcultivation ratio of 1:2-1:4 is recommended.

Sequencing data

WT CACAGTTGCACAATATCCTTTTGAAGACCATAACCCACCA
Mut CACAGTTGCACAATATCCTT---AGACCATAACCCACCA
Allele-1: 4bp deletion in exon5
WT CACAGTTGCACAATATCCTTTTGAAGACCATAACCCACCA
Mut CACAGTTGCACAATATCCTT---AGACCATAACCCACCA
Allele-2: 4bp deletion in exon5

Genome sequence analysis of PCR products from parental (WT) and PTEN knockout (KO) HeLa cells, using sanger sequencing.