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ProductInformation

ANTI-PTEN
Developed in Rabbit, IgG Fraction of Antiserum

Product Number **P 7482**

Product Description

Anti-PTEN is developed in rabbit using a synthetic peptide K-DPENEPFDEDQHSQITKV corresponding to the C-terminal of rat PTEN (amino acids 386-403 with N-terminally added lysine) conjugated to KLH as immunogen. This sequence is identical in mouse PTEN and highly conserved (single amino acid substitution) in the corresponding human PTEN sequence. Whole antiserum is fractionated and then further purified by ion-exchange chromatography to provide the IgG fraction of antiserum that is essentially free of other rabbit serum proteins.

Anti-PTEN recognizes rat PTEN (56 kDa). Applications include the detection and localization of PTEN by immunoblotting. Staining of PTEN in immunoblotting is specifically inhibited with PTEN immunizing peptide (rat, amino acids 386-403 with N-terminally added lysine).

PTEN (Phosphatase and tensin homolog deleted on chromosome ten), also called MMAC (mutated in multiple advanced cancers), is a tumor suppressor gene implicated in wide variety of human cancers, particularly prevalent in glioblastomas, endometrial carcinomas, advanced prostate cancers and breast cancers.[1-8] In addition, germline mutations in PTEN give rise to Cowden disease, an autosomal-dominant syndrome, characterized by multiple hamartomas and increased risk for development of breast, thyroid and brain tumors.[8,9] The *PTEN* gene encodes a 403 amino acid protein (apparent MW ~56kD), originally described as a dual-specificity protein phosphatase.[10] However, considerable evidence indicates that PTEN is a lipid phosphatase. Its main substrates are inositol phospholipids, such as phosphatidylinositol(3,4,5)-phosphate (PIP_3) generated by the activation of phosphatidylinositol- 3-kinase (PI3-kinase).[11,12] The lipid phosphatase activity of PTEN is essential for its tumor suppressor activity, and cells with reduced or no PTEN activity have increased levels of PIP_3.[12] Tumor suppression by PTEN is associated with its ability to induce growth arrest and apoptosis. Biochemical and functional evidence indicate that PTEN is a major negative regulator of the PI3-kinase-Akt/PKB signaling pathway, controlling cell proliferation and survival.[9,12-15] *mPTEN*-mutant embryos display extensive proliferation *in vitro* and *in vivo*.[13] Cells lacking functional PTEN, exhibit decreased sensitivity to cell death in response to a variety of apoptotic stimuli, accompanied by constitutively elevated activity of Akt/PKB.[13] Expression of functional PTEN in mutant cells leads to reduced, normal levels of activated Akt/PKB, while overexpression of Akt/PKB overcomes PTEN-induced cell death.[12,13,14] These activities are dependent upon PTEN ability to dephosphorylate inositol phospholipids and thereby block PI3-kinase and Akt/PKB signaling.

Reagents

Anti-PTEN is supplied as an IgG fraction of antiserum in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Precautions and Disclaimer

Due to the sodium azide content a material safety sheet (MSDS) for this product has been sent to the attention of the safety officer of your institution. Consult the MSDS for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2-8 °C for up to one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended. Storage in "frost-free" freezers is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

A minimum working dilution of 1:3,000 is determined by immunoblotting using a rat brain homogenate extract.

Note: In order to obtain best results and assay sensitivity in different techniques and preparations we recommend determining optimal working dilutions by titration test.

References

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