

Product Information

Anti-TRB3 (N-terminal)

produced in rabbit, affinity isolated antibody

Catalog Number **T8076**

Product Description

Anti-TRB3 (N-terminal) is produced in rabbit using as immunogen a synthetic peptide corresponding to amino acids 11-29 located near the N-terminus region of human TRB3, conjugated to KLH. This sequence has limited homology (~50% identity) to mouse and rat TRB3, and has no identity to TRB1 and TRB2 isoforms. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-TRB3 (N-terminal) recognizes human TRB3, 39 kDa, by immunoblotting. Staining of the TRB3 band is specifically inhibited with the immunizing peptide.

Insulin resistance is a major hallmark in the pathogenesis of type 2 diabetes, dyslipidemia and cardiovascular disease (CVD). Environmental and genetic factors are considered to modulate insulin resistance. Akt/PKB, a serine/threonine protein kinase, is a key mediator of insulin signaling. Impaired Akt kinase activity has been shown in human and animal models of insulin resistance.^{1,2} Thus, mediators of Akt activity are candidates for insulin resistance. The newly identified *TRB3* gene (a mammalian *tribbles* homolog, also known as NIPK, TRIB3, SINK, SKIP3) has been identified as a novel candidate gene involved in insulin resistance.³⁻⁶ TRB3 has been reported to disrupt insulin signaling by binding directly to, and inhibiting, Akt phosphorylation, and is thought to play a role in insulin resistance.^{3,5} TRB3 inhibits phosphorylation of both Thr³⁰⁸ and Ser⁴⁷³ sites in Akt1. It has been suggested that TRB3 may block Akt activation by directly binding to and masking Thr³⁰⁸ phosphorylation. *TRB3* gene is located on the 20p13 human chromosome region that has been associated with type II diabetes.⁶ TRB3 has also been identified as a potential pro-apoptotic protein, and is induced by a variety of cell stress conditions, including hypoxia, TNF and nutrient starvation.⁷⁻¹⁰ It was previously identified as a neuronal cell death-inducible protein kinase (NIPK) that is rapidly upregulated during neuronal apoptosis.¹¹ TRB3 binds to ATF4 and inhibits its transcriptional activity.¹² It interacts with NF-κB transactivator p65 RelA and inhibits its phosphorylation by PKA and its transcriptional activity.¹³ TRB3 has been shown to interact with MAPK kinases to regulate activation of MAPK pathways.¹⁴

TRB3 and its related family members TRB1 and TRB2 show 45% sequence identity. It exhibits resemblance to 'tribbles', a drosophila protein that inhibits mitosis early in development by binding to the CDC25 homolog 'string' and promoting its ubiquitination and proteasome-mediated degradation. Tribbles and its mammalian counterparts lack detectable kinase activity. Like tribbles, TRB family members have a truncated kinase domain that lacks an adenosine 5'-triphosphate binding site (GXGXXG) and contain a variant catalytic core motif.

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody concentration: ~2.5 mg/ml

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet 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, or 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

Immunoblotting: a working concentration of 1-2 µg/ml is recommended using HEK-293 cells expressing human TRB3.

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

References

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