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Product Information

Monoclonal Anti-phospho-β-Catenin (pThr^{41}), clone BCT-41
produced in mouse, purified immunoglobulin

Catalog Number **C8616**

Product Description

Monoclonal Anti-phospho-β-Catenin (pThr^{41}) (mouse IgG1 isotype) is derived from the BCT-41 hybridoma produced by the fusion of mouse myeloma cells (NS1 cells) and splenocytes from BALB/c mice immunized with a synthetic phospho-peptide corresponding to amino acids 38-50 (pThr^{41}) of human β-catenin, conjugated to KLH. The isotype is determined by a double diffusion immunoassay using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2.

Monoclonal Anti-phospho-β-Catenin (pThr^{41}) reacts specifically with human β-catenin phosphorylated at Thr^{41} (~ 94 kDa). The antibody may be used in ELISA, immunocytochemistry, immunoblotting, and immunoprecipitation. Staining of the phospho-β-catenin (pThr^{41}) band in immunoblotting is specifically inhibited with the phosphorylated immunizing peptide and not with the corresponding non-phosphorylated peptide.

The catenin family of proteins (α, β, γ) are linkers between the cytosolic domain of the cadherin adhesion molecules and the cytoskeleton elements in cell-cell adherens junction.[1] In the adherens junctions, β-catenin associates the cadherin family of membrane proteins with the cytoskeleton elements via interaction with the α-catenin. In addition to the role of β-catenin in cell-cell adhesion, the cytosolic β-catenin plays a significant role in the Wnt signaling pathway. Upon cell activation, β-catenin can enter the nucleus and activate transcription of several downstream genes.[2-5] The level of the cytosolic β-catenin is regulated by its phosphorylation and this controls the activation of the Wnt signaling.[3]

β-Catenin activity is regulated by phosphorylation on serine/threonine residues located at the protein amino-terminus. Four of these amino terminal residues: Ser^{33}, Ser^{37}, Thr^{41}, and Ser^{45} are conserved from *Drosophila* to human and are targets for phosphorylation. The phosphorylation of β-catenin occurs in a protein complex that includes the APC complex (Adnomatous Polyposis Coli), together with Axin and glycogen synthase kinase-3 (GSK-3). In this complex, GSK-3 is the kinase responsible for phosphorylating β-catenin. In addition, the phosphorylation of the Ser^{45} residue is performed by a complex of Axin and CKI (casein kinase I).[3-4] The phosphorylation of the β-catenin protein targets the protein to degradation by the β-TrCP (β-transducin repeat-containing protein). β-TrCP regulates the ubiquitination and thus the degradation of the phosphorylated β-catenin in the proteasome.[2-6] Mutations in the amino-terminal region of the protein and in particular in the phosphorylation sites in that region, cause reduction in the degradation of the protein and can lead to cancer. Indeed, several mutations in the amino-terminal portion of β-catenin are found in a variety of human cancer.[2-7]

Monoclonal antibodies to phospho-β-catenin (pThr^{41}) are an important tool for studying the regulation of β-catenin by phosphorylation and thus the transcription control of many proteins.

Reagent

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

Antibody Concentration: ~2 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 prolonged 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 antibody concentration of 8-10 μg/mL is recommended using an immunoprecipitated β-catenin from extract of cultured 293T (human embryonal kidney) cells treated with Lici (20 mM) and calyculin A (50 nM).

Immunocytochemistry: a working antibody dilution of 1:50 is recommended using 293 T (human embryonic kidney cell)

Note: In order to obtain the best results using various techniques and preparations, we recommend determining optimal working dilutions by titration.

References

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