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Product Information

Anti-β-Catenin
produced in rabbit, delipidized, whole antiserum

Catalog Number **C2206**

Product Description

Anti-β-Catenin is produced in rabbit using a synthetic peptide (Pro-Gly-Asp-Ser-Asn-Gln-Leu-Ala-Trp-Phe-Asp-Thr-Asp-Leu) conjugated to KLH as immunogen. The peptide corresponds to amino acids 768-781 of human or mouse β-catenin. The antiserum has been treated to remove lipoproteins.

The distinct peripheral cytosolic proteins, α-, β- and γ-catenin (102 kDa, 94 kDa and 86 kDa respectively), are found in varying abundance in many developing and adult tissues.[1,2,3] The catenins bind, directly or indirectly, to the conserved cytoplasmic tail domain of the cell-adhesion cadherins. Cadherins are transmembrane cell surface glycoprotein molecules, concentrated at adherens junctions that mediate calcium-dependent intercellular interactions and are important for tissue morphogenesis.[4] The linkage of the epithelial E- cadherin/uvomorulin to actin is essential for the cell binding function of this cadherin. Catenins also link E cadherin to other integral membrane proteins such as Na^+/K^+-ATPase, or to cytoplasmic proteins such as fodrin, ankyrin, Src and Yes kinases[5] and are modulated by Wnt-1 protooncogene.[6,7] They are considered good candidates for mediating transduction of cell-cell contact positional signals to the cell interior.[4,5] Within its conserved regions α-catenin shows 30% identity to vinculin, a protein found mainly in focal cell-cell and cell substrate adhesions.[2,3] Vinculin is known to interact with α-actinin, which in turn is associated with actin filaments in their site of attachment to the cell membrane focal contacts. The protein, α-catenin, is capable of interacting with N-cadherin and P-cadherin. Absence of α-catenin is found in certain tumor cell lines.[8] Frequent reduction of α-catenin levels in human carcinomas of the esophagus, stomach and colon is reported[9] Enhancement of tumor cell invasion and metastatic ability of such cells following catenins down-regulation is speculated. Prostate cancer development appears to be correlated with α-catenin gene deletions.

Plakoglobin (probably identical to γ-catenin) and β-catenin are structural and possibly functional mammalian homologues of armadillo (arm), a *Drosophila* protein involved in signal transduction. The protein, β-catenin, binds directly to the cytoplasmic tail of E- cadherin. It binds to the amino terminus of α-catenin and also interacts with the cytosolic protein product of the human tumor suppressor gene APC.[10] Mutations in this gene occur early in colon carcinogenesis. Such mutations are linked to familial adenomatous polyposis and to progression of sporadic colorectal and gastric tumors. The preferential interaction of β-catenin with the APC protein involves a 15-amino acid repeat in the latter[11] and β-catenin cell levels seem to be controlled by APC.[12] The central core region of β-catenin is involved in mediation of the interaction of cadherin-catenin complex with the epidermal growth factor receptor.[13] The protein, β-catenin, is the target of two signal transduction pathways mediated by the protooncogenes Src and Wnt-1. $p120^{cas}$ which exhibits structural similarity to β-catenin and plakoglobin may represent another catenin associated with cadherin.[14] Polyclonal antibodies against defined type-specific catenin peptides are useful tools for the study of these proteins. Such antibodies recognize the respective catenin type in a variety of immunological techniques such as immunoprecipitation, immunoblotting, immunofluorescence and immunoperoxidase in different cell types from various species.

Reagent

Supplied as a liquid containing 15 mM sodium azide as a preservative.

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
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.

Specificity
Anti-β-Catenin reacts in dot blot immunoassay with β-catenin peptide amino acids 768-781 conjugated to BSA. It reacts with a 94 kDa protein in extracts of Madin-Darby Bovine Kidney (MDBK) cultured cell line using immunoblotting. The antiserum shows no cross-reactivity with α-catenin peptide (amino acids 890-901) conjugated to BSA. The antibody stains β-catenin in frozen sections and cultured MDBK epithelial cells. Specific staining in immunoblotting is inhibited following preincubation of the diluted antiserum with the β-catenin peptide.

Product Profile
Immunohistochemistry: a minimum working dilution of 1:2,000 was determined using bovine kidney frozen sections.

Indirect Immunofluorescence: a minimum working dilution of 1:2,000 was determined using cultured MDBK cells.

Immunoblotting: a minimum working dilution of 1:4,000 was determined using cultured MDBK cells

Note: In order to obtain best results, it is recommended that each user determine the optimal working dilution for individual applications by titration assay.

Uses
Anti-β-Catenin may be used for the immunolocalization of β-catenin by immunohistology methods using frozen tissue sections and cultured cells. It may be used to detect β-catenin by other immunoassays including dot blot immunoassay and immunoblotting.

References

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