

Product Information

Anti- α -Catenin Biotin Conjugate

Developed in Rabbit
IgG Fraction of Antiserum

Product Number **B 6184**

Product Description

Anti- α -Catenin Biotin Conjugate is developed in rabbit using as immunogen a synthetic peptide corresponding to amino acid residues 890-901 of human/mouse α -E-catenin, conjugated to KLH. 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. The conjugate is prepared by conjugation of the IgG fraction to biotin ϵ -amino caproic acid-N-hydroxy-succinimide ester.

Anti- α -Catenin Biotin Conjugate recognizes α -catenin by immunofluorescence using methanol/acetone fixed cultured cells.

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 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 link E-cadherin to other integral membrane proteins such as Na⁺/K⁺-ATPase, or to cytoplasmic proteins such as fodrin, ankyrin, Src, and Yes kinases⁵ 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. 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.

α -Catenin appears capable of interacting with N-cadherin and P-cadherin. α -Catenin contains binding sites for F-actin, α -actinin, spectrin, vinculin, I-fafadin, ZO-1, and homodimerization sites.⁸⁻¹¹ Absence of α -catenin may be found in certain tumor cell lines.¹² Frequent reduction of α -catenin levels in human carcinomas of the esophagus, stomach, and colon have also been reported.¹³ 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. In addition to the ubiquitous α -E-catenin primarily expressed in epithelia, a neural restricted α -N-catenin and a heart-testis α -T-catenin have been described.

β -catenin and plakoglobin (probably identical to γ -catenin) are structural and functional mammalian homologues of armadillo, a *Drosophila* protein involved in signal transduction. β -catenin binds directly to the cytoplasmic tail of E-cadherin. β -catenin seems to bind to the amino terminus of α -catenin and interacts with a cytosolic protein of the human tumor suppressor gene APC.¹⁴ 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 latter¹⁵ and cell levels of β -catenin appear controlled by APC.¹⁶ The central core region of β -catenin is involved in mediation of the interaction of cadherin-catenin complex with the epidermal growth factor receptor.¹⁷ β -catenin is the target of two signal transduction pathways mediated by the protooncogenes Src and Wnt-1. The protein, p120^{cas}, which exhibits structural similarity to β -catenin and plakoglobin, may represent another catenin associated with cadherin.¹⁸

Reagent

Anti- α -Catenin is supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 0.02 15 mM sodium azide.

IgG concentration: 7-14 mg/ml

Precautions and Disclaimer

Due to the sodium azide content, a material safety data 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 prolonged storage, freeze in working aliquots at -20 °C. Repeated freezing and thawing is not recommended. Storage in frost-free freezers is also not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

By immunofluorescence, a minimum working antibody dilution of 1:400 is recommended using cultured bovine MDBK cells and ExtrAvidin™ FITC conjugate.

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

References

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