

Beta-Catenin Protein, Human, Recombinant (His & GST)

General Information

Synonyms:	catenin beta 1;armadillo;CTNNB;MRD19;catenin β 1; β -Catenin
Protein Construction:	A DNA sequence encoding the human CTNNB1 (P35222-1) (Met 1-Leu 781) was fused with the N-terminal polyhistidine-tagged GST tag at the N-terminus. Predicted N terminal: Met
Species:	Human
Expression Host:	Baculovirus Insect Cells
Accession:	P35222-1
Molecular Weight:	113 kDa (predicted); 116 kDa (reducing conditions)

QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	> 85 % as determined by SDS-PAGE
Endotoxin:	< 1.0 EU/ μ g of the protein as determined by the LAL method.
Formulation:	Supplied as sterile 50 mM Tris, 150 mM NaCl, 25% glycerol, pH 8.0, 0.1 mM EDTA, 1 mM TCEP, 0.4 mM PMSF, 0.5 mM GSH.

Preparation and Storage

Reconstitution:	A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.
Stability & Storage:	It is recommended to store the product under sterile conditions at -20°C to -80°C . Samples are stable for up to 12 months. Please avoid multiple freeze-thaw cycles and store products in aliquots. <small>Actual storage temperature shall be subject to the COA.</small>
Shipping:	Proteins are shipped with blue ice.

Protein Background

beta-Catenin, also known as CTNNB1, is a member of the armadillo family of proteins. These proteins have multiple copies of the so-called armadillo repeat domain, which is specialized for protein-protein binding. It is part of a complex of proteins that constitute adherens junctions (AJs). AJs are necessary for the creation and maintenance of epithelial cell layers by regulating cell growth and adhesion between cells. CTNNB1 also anchors the actin cytoskeleton and may be responsible for transmitting the contact inhibition signal that causes cells to stop dividing once the epithelial sheet is complete. Finally, beta-Catenin binds to the product of the APC gene, which is mutated in adenomatous polyposis of the colon. Defects in beta-Catenin can cause colorectal cancer, pilomatixoma (PTR), medulloblastoma, and ovarian cancer. CTNNB1 is a key downstream component of the

canonical Wnt signaling pathway. In the absence of Wnt, it forms a complex with AXIN1, AXIN2, APC, CSNK1A1 and GSK3B that promotes phosphorylation on N-terminal Ser and Thr residues and ubiquitination of CTNNB1 via BTRC and its subsequent degradation by the proteasome. In the presence of Wnt ligand, beta-Catenin is not ubiquitinated and accumulates in the nucleus, where it acts as a coactivator for transcription factors of the TCF/LEF family, leading to activate Wnt responsive genes. CTNNB1 is involved in the regulation of cell adhesion. The majority of beta-catenin is localized to the cell membrane and is part of E-cadherin/catenin adhesion complexes which are proposed to couple cadherins to the actin cytoskeleton.

Reference

Yang, et al. (2002) Linking β -catenin to androgen-signaling pathway. *J Biol Chem.* 277(13):11336-44.

Hino S, et al. (2005) Phosphorylation of β -Catenin by Cyclic AMP-Dependent Protein Kinase Stabilizes β -Catenin through Inhibition of Its Ubiquitination. *Mol Cell Biol.* 25(20):9063-72.

Liu X, et al. (2005) Rapid, Wnt-induced changes in GSK3 β associations that regulate beta-catenin stabilization are mediated by Galpha proteins. *Curr Biol.* 15(22):1989-97.

Kraus C, et al. (1994) Localization of the human β -catenin gene (CTNNB1) to 3p21: a region implicated in tumor development. *Genomics.* 23(1):272-4.

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