PRODUCT INFORMATION

β-Catenin (human, recombinant)

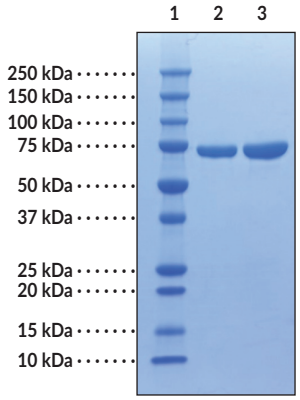
Item No. 28780

Overview and Properties

Synonyms:	Armadillo, Catenin (Cadherin-Associated Protein), β1, 88kDa, Catenin β-1, CTNNB1, EVR7, MRD19, NEDSDV
Source:	Recombinant N-terminal His-TEV-tagged human β-catenin (138-781) purified from *E. coli*
Amino Acids:	138-781
Uniprot No.:	P35222
Molecular Weight:	72.4 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	***batch specific*** (≥90% estimated by SDS-PAGE)
Supplied in:	PBS, pH 7.4, with 1 mM TCEP and 10% glycerol
Protein Concentration:	***batch specific*** mg/ml

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Image



Lane 1: MW Markers
Lane 2: β-Catenin (human, recombinant) (2 µg)
Lane 3: β-Catenin (human, recombinant) (4 µg)

Representative gel image shown; actual purity may vary between each batch.

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Description

β-Catenin is a transcriptional coactivator that is encoded by the *CTNNB1* gene in humans.[1,2] It is a 781-amino acid protein comprised of an N-terminal domain containing glycogen synthase kinase 3β (GSK3β) phosphorylation sites, a C-terminal transactivation domain, and a central domain spanning amino acid residues 138-664.[3,4] The central domain consists of 12 armadillo repeats and is required for binding to cadherins, TCF/LEF transcription factors, and adenomatous polyposis coli (APC). β-Catenin has roles in cell adhesion, canonical Wnt signaling, regulation of stem cells, embryonic development, and adult tissue homeostasis, among others.[1,3] In the absence of Wnt, a complex consisting of axin, APC, GSK3β, and casein kinase 1 (CK1), binds to and phosphorylates β-catenin, targeting it for ubiquitination and proteasomal degradation.[1] In the presence of Wnt, phosphorylation of β-catenin is inhibited, allowing β-catenin to translocate into the nucleus, where it interacts with TCF/LEF to activate expression of Wnt target genes. Activating mutations in *CTNNB1* that stabilize β-catenin have been associated with a variety of cancers, including hepatocellular and adrenocortical carcinomas, colorectal cancer, and pilomatricomas.[4-7] Cayman's β-Catenin (human, recombinant) protein can be used for Western blot and ELISA applications.

References

1. MacDonald, B.T., Tamai, K., and He, X. Wnt/β-catenin Signaling: Components, mechanisms, and diseases. *Dev. Cell.* **17(1)**, 9-26 (2009).
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3. Xing, Y., Takemaru, K.-I., Liu, J., *et al.* Crystal structure of a full-length β-catenin. *Structure* **16(3)**, 478-487 (2008).
4. Akiyama, T. Wnt/β-catenin signaling. *Cytokine Growth Factor Rev.* **11**, 273-282 (2000).
5. de La Coste, A., Romagnolo, B., Billuart, P., *et al.* Somatic mutations of the β-catenin gene are frequent in mouse and human hepatocellular carcinomas. *Proc. Natl. Acad. Sci. USA* **95(15)**, 8847-8851 (1998).
6 Clevers, H. Wnt/β-catenin signaling in development and disease. *Cell* **127**, 469-480 (2006).
7. Durand, J., Lampron, A., Mazzuco, T.L., *et al.* Characterization of differential gene expression in adrenocortical tumors harboring β-catenin (CTNNB1) mutations. *J. Clin. Endocrinol. Metab.* **96(7)**, E1206-E1211 (2011).

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