



**Qty:** 100 µg/200 µl  
**Mouse Anti-β-Catenin**  
**Catalog No.** 13-8400  
**Lot No.**

## Mouse anti-β-Catenin

### FORM

This monoclonal antibody is supplied as a 200 µl aliquot at a concentration of 0.5 mg/ml in phosphate buffered saline, pH 7.4, containing 0.1% sodium azide. The antibody is highly purified from mouse ascites by protein A-affinity chromatography.

**CLONE:** CAT-5H10

**ISOTYPE:** IgG<sub>1</sub>-kappa

### IMMUNOGEN

Fusion protein consisting of the maltose binding protein fused to a 100 amino acid segment of the C-terminus of chicken β-Catenin.

### SPECIFICITY

This antibody is specific for the ~92 kDa β-catenin protein and does not cross react with the related<sup>(9)</sup> 83kDa γ-catenin (plakoglobin) protein. This antibody also specifically detects an additional 120 kDa protein of unknown identity in extracts derived from A431 cells, however, this band is not detected in lysates derived from HeLa cells or human fibroblasts.

### REACTIVITY

Chicken, human, and mouse. Positive controls include Hela, A431, and WI-38 human cell lines. Reactivity with rat is likely but not confirmed. The reactivity of this antibody with other species has not been evaluated.

### USAGE

Working concentrations for specific applications should be determined by the investigator. Appropriate concentrations will be affected by several factors, including secondary antibody affinity, antigen concentration, sensitivity of detection method, temperature and length of incubations, etc. The suitability of this antibody for applications other than those listed below has not been determined. The following concentration ranges are recommended starting points for this product.

**Western Blotting**<sup>(19,21,22, 23)</sup>: 1 µg/ml  
**Immunoprecipitation**<sup>(19,20,22)</sup>: 2-5 µg  
**Immunofluorescence**<sup>(18)</sup>: 5-10 µg/ml  
**Immunohistochemistry\***: 2-10 µg/ml

\*This antibody has been tested on formalin-fixed, paraffin-embedded tissue. Heat-Induced Epitope Retrieval (HIER) is required.

### STORAGE

Store at 2-8°C for up to one month. Store at -20°C for long term storage. Avoid repeated freezing and thawing.

### BACKGROUND

Adherens junctions (AJ) (also referred to as zonula adherens) are required for both the establishment and maintenance of epithelial layers.<sup>(1)</sup> In addition, these junctions have been identified in several other cell types including cardiac myocytes and fibroblasts.<sup>(1)</sup> AJ subserve several important functions including: mediating intercellular adhesion, sensing the presence of neighboring cells, and anchoring the actin cytoskeleton.<sup>(1,10)</sup> AJ are multiprotein complexes that are assembled around cell adhesion molecules called cadherins. Cadherins are a multifunctional family of Ca<sup>2+</sup>-dependent, transmembrane, glycoproteins which promote cell-cell adhesion.<sup>(6)</sup> The cadherin extracellular domain mediates homophilic interactions between like cadherin molecules on neighboring cells, while the intracellular domain interacts with several cytoplasmic proteins which include: α-catenin, β-catenin, γ-catenin (plakoglobin), and the tyrosine kinase substrate p120<sup>cas</sup>.<sup>(2,4,7,9,13,16)</sup> Cadherin-catenin interactions are required for complete cadherin activity and regulate the interaction between cadherins and the actin-based cytoskeleton.<sup>(2,4,6,9,13,17)</sup> In fact, deletion of the cadherin cytoplasmic domain produces an adhesion-defective molecule that is unable to interact with the cytoskeleton.<sup>(6,8)</sup>

(cont'd)

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$\beta$ -catenin is a 92 kDa protein which shares 70% amino acid identity with both plakoglobin ( $\gamma$ -catenin) and the product of the *Drosophila* segment polarity gene armadillo.<sup>(3-5,7)</sup> The Armadillo protein is part of a multiprotein junctional complex and is a required component of the *Drosophila wingless* (vertebrate Wnt-1) signal transduction pathway.<sup>(3,5)</sup>  $\beta$ -catenin, plakoglobin ( $\gamma$ -catenin), and p120<sup>cas</sup> are homologous but distinct proteins which contain between 10-13 copies of a 42-44 amino acid motif first identified in the Armadillo protein and referred to as armadillo repeats.<sup>(3,15,16)</sup> These armadillo repeats mediate the interaction between  $\beta$  and  $\gamma$ -catenin and the cadherin cytoplasmic domain. In addition they mediate  $\beta$ -catenin's interaction with the tumor suppressor protein APC (Adenomatous Polyposis Coli).<sup>(11,15)</sup> Interestingly, the interaction between APC and  $\beta$ -catenin has been speculated to "regulate the transmission of the contact inhibition signal to the cell".<sup>(10-12)</sup> Taken together these findings suggest that  $\beta$ -catenin likely plays a central role in signal transduction pathways regulated by cell-cell adhesion.

## REFERENCES

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## RELATED PRODUCTS

Product	Clone	Cat. No.
Rb x $\alpha$ -Catenin	ZER2	71-1200
Ms x $\alpha$ -Catenin	$\alpha$ CAT-7A4	13-9700
Rb x $\beta$ -Catenin	CAT-15	71-2700
Rb x Occludin	Polyclonal	71-1500
Rb x ZO-1	Polyclonal	61-7300
Ms x E-Cadherin	HECD-1	13-1700
Ms x E-Cadherin	SHE78-7	13-5700
Rt x E-Cadherin	ECCD-1	13-1800
Rt x E-Cadherin	ECCD-2	13-1900
Rt x N-Cadherin	NCD-2	13-2100
Ms x P-Cadherin	NCC-CAD-299	13-5800
Rt x P-Cadherin	PCD-1	13-2000
PolyFast™ Rb x Axin2 + Peptide	AX2	52-1307
PolyFast™ Rb x Cerberus + Peptide	CB1	52-1507
PolyFast™ Rb x DVL1 + Peptide	Z-CD1	52-1607
PolyFast™ Rb x FRZ1 + Peptide	Z-CF1	52-1707
PolyFast™ Rb x ILK + Peptide	Z-CIL6	52-1807
PolyFast™ Rb x TCF-4 + Peptide	Z-NT4	52-1907
PolyFast™ Rb x WIF-1 + Peptide	Z-CW1	52-2107
PolyFast™ Rb x Wnt-1 + Peptide	Z-CW7	52-2207
Protein A	Sepharose® 4B	10-1041
rec-Protein G	Sepharose® 4B	10-1241

Conjugate	ZyMAX™ Goat x Rabbit IgG (H+L)	ZyMAX™ Goat x Mouse IgG (H+L)
Purified	81-6100	81-6500
FITC	81-6111	81-6511
TRITC	81-6114	81-6514
Cy™3	81-6115	81-6515
Cy™5	81-6116	81-6516
HRP	81-6120	81-6520
AP	81-6122	81-6522
Biotin	81-6140	81-6540

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