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Caldesmon-1 (D5C8D) XP® Rabbit mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
WB, IP, IF-IC	H M R Mk	Endogenous	70-80 nonmuscle, 120-150 smooth muscle	Rabbit IgG	#Q05682	800

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50
Immunofluorescence (Immunocytochemistry)	1:200

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Specificity / Sensitivity

Caldesmon-1 (D5C8D) XP® Rabbit mAb recognizes endogenous levels of total caldesmon-1 protein. Based on sequence homology, the antibody is expected to cross-react with both the smooth muscle and nonmuscle isoforms.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues near the carboxy terminus of human caldesmon-1 protein.

Background

Caldesmon-1 is an actin filament stabilizing protein involved in the regulation of cell contraction. Binding of caldesmon-1 to actin is weakened by phosphorylation and by calmodulin in the presence of calcium. Caldesmon-1 is encoded by a single gene, which is spliced to generate a widely distributed low molecular weight form and a smooth muscle specific high molecular weight form (1,2). Caldesmon-1 is phosphorylated by the cyclin dependent kinase cdc2 and Erk1/2 MAP kinase, both of which prevent the activity of caldesmon-1 (3-5). Phosphorylation of caldesmon-1 by cdc2 is required for passage of cells through mitosis (6). Phosphorylation by Erk1/2 is important in regulating smooth muscle contraction (7). Caldesmon-1 activity may play a role in the formation of podosomes, adhesion complexes associated with the secretion of matrix metalloproteases, invasion, and metastasis (reviewed in 5).

Background References

1. Hayashi, K. et al. (1992) *Proc. Natl. Acad. Sci. USA* 89, 12122-12126.
2. Humphrey, M.B. et al. (1992) *Gene* 112, 197-204.
3. Yamashiro, S. et al. (1991) *Nature* 349, 169-172.
4. Mak, A.S. et al. (1991) *J. Biol. Chem.* 266, 6678-6681.
5. Hai, C.M. and Gu, Z. (2006) *Eur. J. Cell Biol.* 85, 305-309.
6. Yamashiro, S. et al. (2001) *Mol. Biol. Cell* 12, 239-250.
7. Hedges, J.C. et al. (2000) *Am. J. Physiol. Cell Physiol.* 278, C718-C7126.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v nonfat dry milk, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

WB: Western Blotting **IP:** Immunoprecipitation **IF-IC:** Immunofluorescence (Immunocytochemistry)

Cross-Reactivity Key

H: human **M:** mouse **R:** rat **Hm:** hamster **Mk:** monkey **Vir:** virus **Mi:** mink **C:** chicken **Dm:** D. melanogaster
X: Xenopus **Z:** zebrafish **B:** bovine **Dg:** dog **Pg:** pig **Sc:** S. cerevisiae **Ce:** C. elegans **Hr:** horse
GP: Guinea Pig **Rab:** rabbit **All:** all species expected

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