Revision 1

#5163 Store at -20C

Phospho-MYPT1 (Thr696) Antibody

Cell Signaling TECHNOLOGY®

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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source:	UniProt ID:	Entrez-Gene Id:
WB	H M R Mk	Endogenous	140	Rabbit	#O14974	4659

Product Usage Information

Application	Dilution
Western Blotting	1:1000

Storage

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

Specificity / Sensitivity

Phospho-MYPT1 (Thr696) Antibody detects endogenous levels of MYPT1 only when phosphorylated at Thr696. The antibody may cross-react with the phospho-MYPT2 (Thr 646) due to high sequence homology.

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surroundiing Thr696 of human MYPT1. Antibodies are purified using protein A and peptide affinity chromatography.

Background

Protein phosphatase 1 (PP1) is a ubiquitous eukaryotic protein serine/threonine phosphatase involved in the regulation of various cell functions. Substrate specificity is determined by the binding of a regulatory subunit to the PP1 catalytic subunit (PP1c). It is estimated that over fifty different regulatory subunits exist (1).
The myosin phosphatase holoenzyme is composed of three subunits: PP1c, a targeting/regulatory subunit (MYPT/myosin-binding subunit of myosin phosphatase), and a 20 kDa subunit of unknown function (M20). MYPT binding to PP1cδ alters the conformation of the catalytic cleft and increases enzyme activity and specificity (2). Two MYPT isoforms that are 61% identical have been described. MYPT1 is widely expressed, while MYPT2 expression appears to be exclusive to heart and brain (3). Related family members include MBS85, MYPT3, and TIMAP (4).
Myosin phosphatase regulates the interaction of actin and myosin in response to signaling through the small GTPase Rho. Rho activity inhibits myosin phosphatase via Rho-associated kinase (ROCK). Phosphorylation of MYPT1 at Thr696 and Thr853 results in phosphatase inhibition and cytoskeletal reorganization (5,6).

Background References

1. Cohen, P.T. (2002) *J Cell Sci* 115, 241-56.
2. Terrak, M. et al. (2004) *Nature* 429, 780-4.
3. Fujioka, M. et al. (1998) *Genomics* 49, 59-68.
4. Ito, M. et al. (2004) *Mol Cell Biochem* 259, 197-209.
5. Birukova, A.A. et al. (2004) *Microvasc Res* 67, 64-77.
6. Birukova, A.A. et al. (2004) *J Cell Physiol* 201, 55-70.

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

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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