Revision 1

Store at -20C

#3681

Phospho-MST1 (Thr183)/MST2 (Thr180) Antibody

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H M GP	Endogenous	59	Rabbit	#Q13043, #Q13188	6789, 6788

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-MST1 (Thr183)/MST2 (Thr180) Antibody recognizes endogenous MST1 and MST2 only when phosphorylated at Thr183 and Thr180, respectively. The antibody may cross-react with phosphorylated MST3 and MST4.

Species predicted to react based on 100% sequence homology

Rat, D. melanogaster

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Thr183 of human MST1. Antibodies are purified by protein A and peptide affinity chromatography.

Background

Mammalian sterile-20-like (MST) kinases are upstream regulators of mitogen-activated protein kinase (MAPK) signaling pathways that regulate multiple cellular processes, including proliferation, apoptosis, migration, and cytoskeletal rearrangement (1). This family of serine/threonine kinases includes MST1 (STK4) and MST2 (STK3), two functionally related proteins with conserved amino-terminal kinase domains and carboxy-terminal regulatory domains that contain nuclear export signals (1-3). During apoptosis, caspase-mediated cleavage of MST1/2 removes the inhibitory regulatory domain, triggering autophosphorylation and activation of the kinase domain, which is translocated to the nucleus. Nuclear translocation of the active kinase induces chromatin condensation and other events associated with apoptotic progression (4).

Research studies indicate that MST1/2 are orthologous to *Drosophila* Hippo (Hpo), one of the core regulatory proteins in the Hippo signaling pathway. This evolutionarily conserved program controls tissue growth and organ size by regulating cell proliferation, apoptosis, and stem cell self-renewal. The mammalian Hippo signaling pathway involves a kinase cascade, where the MST1/2 kinases and the SAV1 scaffold protein form a complex that leads to phosphorylation and activation of LATS1/2. The LATS1/2 kinases phosphorylate YAP and TAZ, promoting cytoplasmic sequestration and inhibition of these transcription coactivators (5).

Activation of MST1 requires dimerization-mediated transphosphorylation and caspase-mediated cleavage (3). Autophosphorylation of MST1 at Thr183 (MST2 at Thr180) is critical for kinase activity (6,7).

Background References

1. Dan, I. et al. (2001) *Trends Cell Biol* 11, 220-30.
2. Creasy, C.L. et al. (1996) *J Biol Chem* 271, 21049-53.
3. Lee, K.K. and Yonehara, S. (2002) *J Biol Chem* 277, 12351-8.
4. Ura, S. et al. (2001) *Proc Natl Acad Sci U S A* 98, 10148-53.
5. Zhao, B. et al. (2011) *Nat Cell Biol* 13, 877-83.
6. Deng, Y. et al. (2003) *J Biol Chem* 278, 11760-7.
7. Praskova, M. et al. (2004) *Biochem J* 381, 453-62.

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

W: Western Blotting

Cross-Reactivity Key

H: Human **M:** Mouse **GP:** Guinea Pig

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