Revision 1

#8849 Store at -20C

Phospho-SHP-1 (Tyr564) (D11G5) Rabbit mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
WB	H M	Endogenous	68	Rabbit IgG	#P29350	5777

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, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Specificity / Sensitivity

Phospho-SHP-1 (Tyr564) (D11G5) Rabbit mAb recognizes endogenous levels of SHP-1 protein only when phosphorylated at Tyr564.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Tyr564 of human SHP-1 protein.

Background

SHP-1 (PTPN6) is a non-receptor protein tyrosine phosphatase that is expressed primarily in hematopoietic cells. The enzyme is composed of two SH2 domains, a tyrosine phosphatase catalytic domain, and a carboxy-terminal regulatory domain (1). SHP-1 removes phosphates from target proteins to downregulate several tyrosine kinase-regulated pathways. In hematopoietic cells, the amino-terminal SH2 domain of SHP-1 binds to tyrosine phosphorylated erythropoietin receptors (EPORs) to negatively regulate hematopoietic growth (2). Overexpression of SHP-1 in epithelial cells results in dephosphorylation of the Ros receptor tyrosine kinase and subsequent downregulation of Ros-dependent cell proliferation and transformation (3). Following ligand binding in myeloid cells, SHP-1 associates with the IL-3R β chain and downregulates IL-3-induced tyrosine phosphorylation and cell proliferation (4). Because SHP-1 downregulates various proliferation pathways, SHP-1 is considered a potential tumor suppressor and angiogenesis regulator (5,6).

SHP-1 is a substrate of Src family kinases (7,8) and phosphorylation of Tyr564 is thought to be critical for achieving maximal phosphatase activity (8). In a murine model of chronic myelomonocytic leukemia (CMML), genetic suppression of Tyr564 phosphorylation led to constitutive overactivation of the transcription factor Stat5 and an accelerated onset of CMML-like disease (8).

Background References

1. Yi, T.L. et al. (1992) *Mol Cell Biol* 12, 836-46.
2. Yi, T. et al. (1995) *Blood* 85, 87-95.
3. Keilhack, H. et al. (2001) *J Cell Biol* 152, 325-34.
4. Yi, T. et al. (1993) *Mol Cell Biol* 13, 7577-86.
5. Wu, C. et al. (2003) *Gene* 306, 1-12.
6. Bhattacharya, R. et al. (2008) *J Mol Signal* 3, 8.
7. Zhang, Z. et al. (2003) *J Biol Chem* 278, 4668-74.
8. Xiao, W. et al. (2010) *Blood* 116, 6003-13.

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 BSA, 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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