Revision 1

Store at -20C

#9153

# LATS1 Antibody

Cell Signaling TECHNOLOGY®

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

| Applications: | Reactivity: | Sensitivity: | MW (kDa): | Source/Isotype: | UniProt ID: | Entrez-Gene Id: |
|---|---|---|---|---|---|---|
| W | H Mk | Endogenous | 140 | Rabbit | #O95835 | 9113 |

## 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

LATS1 Antibody detects endogenous levels of total LATS1 protein.

## Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to amino acids surrounding Ser177 of human LATS1. Antibodies are purified by protein A and peptide affinity chromatography.

## Background

The Large tumor suppressor (LATS) proteins (LATS1, LATS2) are serine/threonine kinases that belong to the NDR family (1). The *Drosophila* homolog (warts) was first identified as a tumor suppressor protein that plays a role in the maintenance of ploidy. Human LATS1 was shown to localize to the centrosome and the mitotic spindle and control G2/M transition by negatively regulating cdc2 kinase activity (2,3). LATS1 is also reported to play a role in the G1 tetraploidy checkpoint, via control of p53 expression (4). LATS1 affects cytokinesis by regulating actin polymerization through negative modulation of LIMK1 (5). LATS1 also binds the phosphorylated form of zyxin, a regulator of actin filament assembly. This interaction promotes localization of zyxin to the mitotic spindle, suggesting a role for actin regulatory proteins during mitosis (6). Decreased expression of LATS1 is associated with breast tumor aggressiveness (7), and mutations perturbing LATS1 have been associated with human sarcomas and ovarian sarcomas (8,9). LATS1 knockout mice develop soft-tissue sarcomas, ovarian stromal cell tumor, and display a high sensitivity to carcinogenic treatments (10). LATS1 and LATS2 have also been identified as key members of the Hippo signaling pathway, a conserved kinase cascade that functions to regulate cell growth and apoptosis (11). Phosphorylation of LATS by Mammalian Sterile-20-like proteins (e.g., MST1) results in LATS-mediated phosphorylation of the transcriptional co-activators YAP and TAZ (12, 13). LATS-mediated phosphorylation of YAP and TAZ promotes their cytoplasmic sequestration and association with 14-3-3 proteins, and subsequent proteasomal degradation, leading to downregulation of YAP/TAZ target genes that promote cell growth (11, 14).

## Background References

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5. Yang, X. et al. (2004) *Nat Cell Biol* 6, 609-17.
6. Hirota, T. et al. (2000) *J Cell Biol* 149, 1073-86.
7. Morinaga, N. et al. (2000) *Int J Oncol* 17, 1125-9.
8. Hansen, L.L. et al. (2002) *Cancer Genet Cytogenet* 139, 1-8.
9. Hisaoka, M. et al. (2002) *Lab Invest* 82, 1427-35.
10. St John, M.A. et al. (1999) *Nat Genet* 21, 182-6.
11. Guo, C. et al. (2007) *Curr Biol* 17, 700-5.
12. Hergovich, A. et al. (2006) *Biochem Biophys Res Commun* 345, 50-8.
13. Hirabayashi, S. et al. (2008) *Oncogene* 27, 4281-92.
14. Zhao, B. et al. (2010) *J Cell Sci* 123, 4001-6.

## 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

**W:** Western Blotting

## Cross-Reactivity Key

**H:** Human **Mk:** Monkey

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