Revision 1

#3983 Store at -20C

Phospho-ALK (Tyr1278/1282/1283) Antibody

Cell Signaling TECHNOLOGY®

Orders: 877-616-CELL (2355) orders@cellsignal.com

Support: 877-678-TECH (8324)

Web: info@cellsignal.com cellsignal.com

3 Trask Lane | Danvers | Massachusetts | 01923 | USA

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

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source:	UniProt ID:	Entrez-Gene Id:
WB, IP	H	Endogenous	80 (NPM-ALK), 220 (ALK)	Rabbit	#Q9UM73	238

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50

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-ALK (Tyr1278/1282/1283) Antibody detects ALK only when phosphorylated at Tyr1278/1282/1283, which is equivalent to Tyr338/342/343 of NPM-ALK. This antibody might also have slight reactivity toward ALK when it is phosphorylated at Tyr1283 alone. This antibody also reacts with leukocyte tyrosine kinase (LTK) phosphorylated at Tyr672/676/677.

Species predicted to react based on 100% sequence homology:

Mouse, Rat

Source / Purification

Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Tyr1278/1282/1283 of human ALK protein. Antibodies are purified by protein A and peptide affinity chromatography.

Background

Anaplastic lymphoma kinase (ALK) is a tyrosine kinase receptor for pleiotrophin (PTN), a growth factor involved in embryonic brain development (1-3). In ALK-expressing cells, PTN induces phosphorylation of both ALK and the downstream effectors IRS-1, Shc, PLCγ, and PI3 kinase (1). ALK was originally discovered as a nucleophosmin (NPM)-ALK fusion protein produced by a translocation (4). Investigators have found that the NPM-ALK fusion protein is a constitutively active, oncogenic tyrosine kinase associated with anaplastic lymphoma (4). Research literature suggests that activation of PLCγ by NPM-ALK may be a crucial step for its mitogenic activity and involved in the pathogenesis of anaplastic lymphomas (5).
A distinct ALK oncogenic fusion protein involving ALK and echinoderm microtubule-associated protein like 4 (EML4) has been described in the research literature from a non-small cell lung cancer (NSCLC) cell line, with corresponding fusion transcripts present in some cases of lung adenocarcinoma. The short, amino-terminal region of the microtubule-associated protein EML4 is fused to the kinase domain of ALK (6-8).
Phosphorylation of ALK on Tyr1278/Tyr1282/Tyr1283 was identified at Cell Signaling Technology (CST) using PhosphoScan®, CST's LC-MS/MS platform for phosphorylation site discovery. Phosphorylation of ALK at these three sites was observed in select carcinoma cell lines and in tumors (6).

Background References

1. Stoica, G.E. et al. (2001) *J Biol Chem* 276, 16772-9.
2. Iwahara, T. et al. (1997) *Oncogene* 14, 439-49.
3. Morris, S.W. et al. (1997) *Oncogene* 14, 2175-88.
4. Morris, S.W. et al. (1994) *Science* 263, 1281-4.
5. Bai, R.Y. et al. (1998) *Mol Cell Biol* 18, 6951-61.
6. Rikova, K. et al. (2007) *Cell* 131, 1190-203.
7. Takeuchi, K. et al. (2008) *Clin Cancer Res* 14, 6618-24.
8. Soda, M. et al. (2007) Nature 448, 561-6.

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

WB: Western Blotting **IP:** Immunoprecipitation

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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Limited Uses