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Phospho-ALK (Tyr1278) Antibody

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For Research Use Only. Not For Use In Diagnostic Procedures.

Entrez-Gene ID #238
UniProt ID #Q9UM73

Applications	Species Cross-Reactivity*	Molecular Wt.	Source
W Endogenous	H	220 kDa (ALK), 80 kDa (NPM-ALK)	Rabbit**

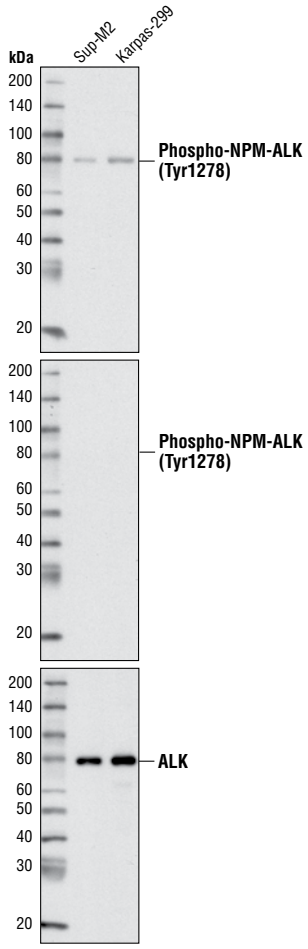
Background: Anaplastic lymphoma kinase (ALK) is a tyrosine kinase receptor for pleiotrophin (PTN), a growth factor involved in embryonic brain development (1-3). In ALK-expressing cells, PTN induces phosphorylation of both ALK and the downstream effectors IRS-1, Shc, PLCγ and PI3 kinase (1). ALK was originally discovered as an NPM (nucleophosmin)-ALK fusion protein produced by a translocation (4). The NPM-ALK fusion protein is a constitutively active, oncogenic tyrosine kinase associated with anaplastic lymphoma (4). Activation of PLCγ by NPM-ALK has been suggested to be a crucial step for its mitogenic activity and may be important in the pathogenesis of anaplastic lymphomas (5).

A distinct ALK oncogenic fusion protein involving ALK and EML4 has been described from a non-small cell lung cancer 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 (6,7).

Phosphorylation of ALK on Tyr1278 was identified at Cell Signaling Technology (CST) using PhosphoScan®, CST's LC-MS/MS platform for phosphorylation site discovery. Phosphorylation of ALK at Tyr1278 was observed in select carcinoma cell lines and in tumors (6).

Specificity/Sensitivity: Phospho-ALK (Tyr1278) Antibody detects ALK only when phosphorylated at Tyr1278, which is equivalent to Tyr338 of NPM-ALK. This antibody also reacts with leukocyte tyrosine kinase (LTK) phosphorylated at Tyr672, and may cross-react with other activated protein tyrosine kinases including Bcr-Abl.

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



Western blot analysis of extracts from Sup-M2 and Karpas-299 cells using Phospho-ALK (Tyr1278) Antibody (upper and middle) and ALK (C26G7) Rabbit mAb #3333 (lower). The middle and lower blots were treated with calf intestinal phosphatase to dephosphorylate NPM-ALK. Cell Line Source: Dr Abraham Karpas at the University of Cambridge.

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.*

***Species cross-reactivity is determined by western blot.**

****Anti-rabbit secondary antibodies must be used to detect this antibody.**

Recommended Antibody Dilutions:
Western Blotting 1:1000

For application specific protocols please see the web page for this product at www.cellsignal.com.

Please visit www.cellsignal.com for a complete listing of recommended companion products.

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.

IMPORTANT: For western blots, incubate membrane with diluted antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

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Applications Key: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide
Species Cross-Reactivity Key: **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **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 **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.