

# Phospho-ALK (Tyr1604) Antibody



- Small 100 µl (10 western blots)
- Large 300 µl (30 western blots)

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This product is intended for research purposes only. This product is not intended to be used for therapeutic or diagnostic purposes in humans or animals.

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

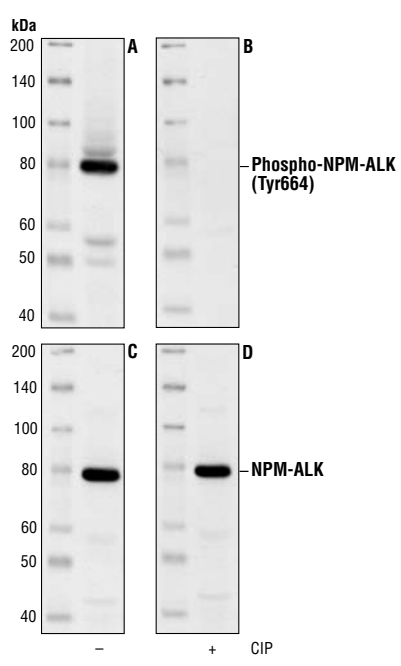
**Background:** Anaplastic lymphoma kinase (ALK) is a tyrosine kinase receptor for pleiotrophin (PTN), a growth factor involved in embryonic brain development (1-3). In ALK-expressing cells, PTN induces phosphorylation of both ALK and the downstream effectors IRS-1, Shc, PLCγ and PI3 kinase (1). ALK 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).

Phosphorylated Tyr664 of NPM-ALK (equivalent to Tyr1604 of full length ALK) is required for the interaction with PLCγ (5). Site-directed mutagenesis of this tyrosine residue results in the loss of oncogenic activity of NPM-ALK (5).

**Specificity/Sensitivity:** Phospho-ALK (Tyr1604) Antibody detects ALK only when phosphorylated at Tyr1604 (equivalent to Tyr664 of NPM-ALK). This antibody may cross-react with other activated protein tyrosine kinases including EGFR.

**Source/Purification:** Polyclonal antibodies are produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Tyr1604 of human ALK. Antibodies are purified by protein A and peptide affinity chromatography.



Western blot analysis of extracts from Sup-M2 cells using Phospho-ALK (Tyr1604) Antibody (A,B) or ALK Antibody (C,D). The phospho-specificity of the antibody was characterized by treating the membrane with calf intestinal alkaline phosphatase (CIP) (B,D) after Western transfer. (Sup-M2 cells provided by Dr. Stephan W. Morris, St. Jude Children's Research Hospital, Tennessee.)

Entrez-Gene ID #238  
Swiss-Prot Acc. #Q9UM73

**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  
Immunoprecipitation 1:100

For application specific protocols please see the web page for this product at [www.cellsignal.com](http://www.cellsignal.com).

Please visit [www.cellsignal.com](http://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.