Product datasheet

Anti-ALK antibody [SP8] ab16670
RabMAb

Overview

Product name: Anti-ALK antibody [SP8]
Description: Rabbit monoclonal [SP8] to ALK
Host species: Rabbit
Tested applications: Suitable for: WB, IHC-P
Species reactivity: Reacts with: Human
Predicted to work with: Mouse, Rat
Immunogen: Recombinant fragment within ALK aa 1350-1500. The exact sequence is proprietary.
Positive control: Anaplastic lymphoma
General notes: The amino acid sequence used to raise this antibody was: aa 1366-1468.

This antibody recognises a human p80 protein, identified as a hybrid of the anaplastic lymphoma kinase (ALK) gene and the nucleophosmin (NPM) gene resulting from the t(2;5)(p23;q35) translocation found in a third of large cell lymphomas. This rabbit monoclonal antibody can be used to detect p80 in these lymphomas and may also be used to detect a recently described subtype of large B cell lymphoma, which expresses the full-length ALK protein.

Properties

Form: Liquid
Storage instructions: Shipped at 4°C. Upon delivery aliquot and store at -20°C. Avoid repeated freeze / thaw cycles.
Storage buffer: pH: 7.5
Preservative: 0.1% Sodium azide
Constituents: Tissue culture supernatant, Tris buffered saline, 1% BSA
Purity: Tissue culture supernatant
Primary antibody notes: This antibody recognises a human p80 protein, identified as a hybrid of the anaplastic lymphoma kinase (ALK) gene and the nucleophosmin (NPM) gene resulting from the t(2;5)(p23;q35) translocation found in a third of large cell lymphomas. This rabbit polyclonal antibody can be used to detect p80 in these lymphomas and may also be used to detect a recently described subtype of large B cell lymphoma, which expresses the full-length ALK protein.
Clonality: Monoclonal
Clone number: SP8
Isotype: IgG

Applications

Our Abpromise guarantee covers the use of ab16670 in the following tested applications. The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

<table>
<thead>
<tr>
<th>Application</th>
<th>Abreviews</th>
<th>Notes</th>
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<tbody>
<tr>
<td>WB</td>
<td>Use at an assay dependent concentration. Predicted molecular weight: 80 kDa. PubMed: 21847362</td>
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<tr>
<td>IHC-P</td>
<td>1/100. Antigen retrieval: Boil tissue section in 10mM citrate buffer, pH 6.0 for 10 min followed by cooling at room temperature for 20 min.</td>
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Target

Function

Neuronal receptor tyrosine kinase that is essentially and transiently expressed in specific regions of the central and peripheral nervous systems and plays an important role in the genesis and differentiation of the nervous system. Transduces signals from ligands at the cell surface, through specific activation of the mitogen-activated protein kinase (MAPK) pathway. Phosphorylates almost exclusively at the first tyrosine of the Y-x-x-Y-Y motif. Following activation by ligand, ALK induces tyrosine phosphorylation of CBL, FRS2, IRS1 and SHC1, as well as of the MAP kinases MAPK1/ERK2 and MAPK3/ERK1. Acts as a receptor for ligands pleiotrophin (PTN), a secreted growth factor, and midkine (MDK), a PTN-related factor, thus participating in PTN and MDK signal transduction. PTN-binding induces MAPK pathway activation, which is important for the anti-apoptotic signaling of PTN and regulation of cell proliferation. MDK-binding induces phosphorylation of the ALK target insulin receptor substrate (IRS1), activates mitogen-activated protein kinases (MAPKs) and PI3-kinase, resulting also in cell proliferation induction. Drives NF-kappa-B activation, probably through IRS1 and the activation of the AKT serine/threonine kinase. Recruitment of IRS1 to activated ALK and the activation of NF-kappa-B are essential for the autocrine growth and survival signaling of MDK.

Tissue specificity

Expressed in brain and CNS. Also expressed in the small intestine and testis, but not in normal lymphoid cells.

Involvement in disease

A chromosomal aberration involving ALK is found in a form of non-Hodgkin lymphoma. Translocation t(2;5)(p23;q35) with NPM1. The resulting chimeric NPM1-ALK protein homodimerize and the kinase becomes constitutively activated. The constitutively active fusion proteins are responsible for 5-10% of non-Hodgkin lymphomas.

A chromosomal aberration involving ALK is associated with inflammatory myofibroblastic tumors (IMTs). Translocation t(2;11)(p23;p15) with CARs; translocation t(2;4)(p23;q21) with SEC31A. A chromosomal aberration involving ALK is associated with anaplastic large-cell lymphoma (ALCL). Translocation t(2;17)(p23;q25) with ALO17.

Neuroblastoma 3

The ALK signaling pathway plays an important role in glioblastoma, the most common malignant brain tumor of adults and one of the most lethal cancers. It regulates both glioblastoma migration and growth.
A chromosomal aberration involving ALK is found in one subject with colorectal cancer. Translocation t(2;2)(p23.1;p23.3). A 5 million base pair tandem duplication generates an in-frame WDCP-ALK gene fusion.

**Sequence similarities**
Belongs to the protein kinase superfamily. Tyr protein kinase family. Insulin receptor subfamily. Contains 1 LDL-receptor class A domain. Contains 2 MAM domains. Contains 1 protein kinase domain.

**Post-translational modifications**
Phosphorylated at tyrosine residues by autocatalysis, which activates kinase activity. In cells not stimulated by a ligand, receptor protein tyrosine phosphatase beta and zeta complex (PTPRB/PTPRZ1) dephosphorylates ALK at the sites in ALK that are undergoing autophosphorylation through autoactivation. Phosphorylation at Tyr-1507 is critical for SHC1 association.
N-glycosylated.

**Cellular localization**
Cell membrane. Membrane attachment was crucial for promotion of neuron-like differentiation and cell proliferation arrest through specific activation of the MAP kinase pathway.

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### Images

**Immunohistochemical analysis of Human anaplastic lymphoma tissue labelling ALK with ab16670.**

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ALK antibody [SP8] (ab16670)

**Immunohistochemical analysis of paraffin-embedded Human anaplastic lymphoma tissue labelling ALK with ab16670 at 1/100.**

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ALK antibody [SP8] (ab16670)

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