

Product datasheet

Recombinant human ALK (mutated C1156Y) protein ab191035

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Description

Product name	Recombinant human ALK (mutated C1156Y) protein
Biological activity	The specific activity of ab191035 was determined to be 45 nmol/min/mg.
Purity	> 70 % Densitometry. Affinity purified.
Expression system	Baculovirus infected Sf9 cells
Accession	<u>Q9UM73</u>
Protein length	Protein fragment
Animal free	No
Nature	Recombinant
Species	Human
Sequence	RRKHQELQAMQMELQSPEYKLSKLRSTIMTDYNPNYCFA GKTSSISDLK EVPRKNITLIRGLGHGAFGEVYEGQVSGMPNDPSPLQVAV KTLPEVYSEQ DELDFLMEALIISKFNHQNIVRCIGVSLQSLPRFILLELMAG GDLKSFLR ETRPRPSQPSSLAMLDLLHWARDIACGCQYLEENHFIHRDI AARNCLLTC PGPGRVAKIGDFGMARDIYRASYYRKGGCAMLPVKWMPP EAFMEGIFTSK TDTWSFGVLLWEIFSLGYMPYPSKSNQEVLVFTSGGRM DPPKNCGPVY RIMTQCWQHQPEDRPNFAILERIEYCTQDPDVINTALPIEY GPLVEEEE KVPVRPKDPEGVPPLLVSQQAKREEERSPAAPPPLPTTS SGKAAKKPTAA EISVRVPRGPAVEGGHVNMAFSQSNPPSELHKVHGSRNK PTSLWNPTYGS WFTEKPTKNNPIAKKEPHDRGNLGLEGSCVPPNVATG RLPGASLLLEP SSLTANMKEVPLFRLRHFP CGNVNYGYQQQLPLEAATA PGAGHYEDTIL KSKNSMNQPGP

Predicted molecular weight	90 kDa including tags
Amino acids	1060 to 1620
Modifications	mutated C1156Y
Tags	proprietary tag N-Terminus
Additional sequence information	NM_004304.

Specifications

Our **Abpromise guarantee** covers the use of **ab191035** in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Applications	SDS-PAGE Functional Studies
Form	Liquid

Preparation and Storage

Stability and Storage	Shipped on Dry Ice. Upon delivery aliquot. Store at -80°C. Avoid freeze / thaw cycle. pH: 7.5 Preservative: 1.02% Imidazole Constituents: 0.82% Sodium phosphate, 1.74% Sodium chloride, 0.002% PMSF, 0.004% DTT, 25% Glycerol (glycerin, glycerine) This product is an active protein and may elicit a biological response in vivo, handle with caution.
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General Info

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-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

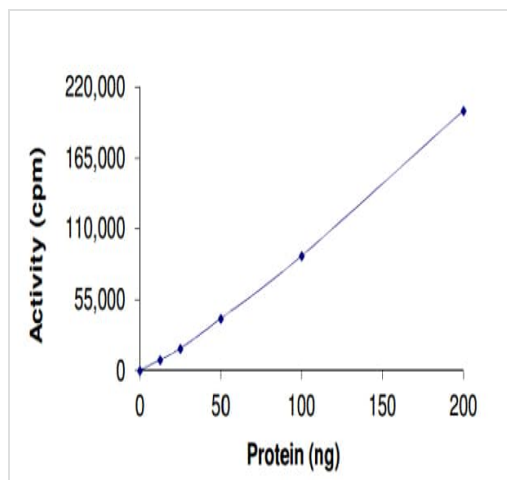
Phosphorylated at tyrosine residues by autocatalysis, which activates kinase activity. In cells not stimulated by a ligand, receptor protein tyrosine phosphatase beta and zeta complex (PTPRB/PTPRZ1) dephosphorylates ALK at the sites in ALK that are undergoing autophosphorylation through autoactivation. 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.

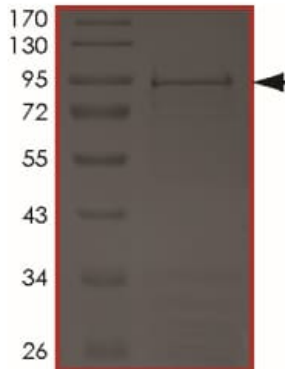
Images



Kinase assay showing the specific activity of ab191035 to be 45 nmol/min/mg.

Functional Studies - Recombinant human ALK (mutated C1156Y) protein (ab191035)

SDS-PAGE analysis of ab191035.



SDS-PAGE - Recombinant human ALK (mutated C1156Y) protein (ab191035)

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