

## Product datasheet

# Recombinant human ALK (mutated R1275Q) protein ab186455

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### Description

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<b>Product name</b>	Recombinant human ALK (mutated R1275Q) protein
<b>Biological activity</b>	The specific activity of ab186455 was determined to be 19 nmol /min/mg as per activity assay protocol.
<b>Purity</b>	> 90 % Densitometry. Affinity purified.
<b>Expression system</b>	Baculovirus infected Sf9 cells
<b>Accession</b>	<b><u>Q9UM73</u></b>
<b>Protein length</b>	Protein fragment
<b>Animal free</b>	No
<b>Nature</b>	Recombinant
<b>Species</b>	Human
<b>Sequence</b>	RRKHQELQAMQMELQSPEYKLSKLRSTIMTDYNPNYCFAGKTSSISDLK EVPRKNITLIRGLGHGAFGEVYEGQVSGMPNDPSPLQVAVKTLPEVCSEQ DELDFLMEALISKFNHQNIVRCIGVSLQSLPRFILLELMAGGDLKSFLR ETRPRPSQPSSLAMLDLLHWARDIACGCQYLEENHFHHRDIAARNCLLTC PGPGRVAKIGDFGMAQDIYRASYYRKGGCAMLPVKWMPP EAFMEGIFTSK TDTWSFGVLLWEIFSLGYMPYPSKSNQEVLVFTSGGRMDPPKNCPPVY RIMTQCWQHQPEDRPNFAILLERIEYCTQDPDVINTALPIEYGPLVEEEE KVPVVRPKDPEGVPPLLVSQQAKREEERSPAAPPPLPTTSSGKAAKKPTAA EISVRVPRGPAVEGGHVNMAFSQSNPPSELHKVHGSRNKPTSLWNPTYGS WFTKPTKKNPIAKKEPHDRGNLGLEGSCVPPNVATGRLPGASLLLEP SSLTANMKEVPLFRLRHFP CGNVNYGYQQQGLPLEAATA

<b>Predicted molecular weight</b>	90 kDa
<b>Amino acids</b>	1060 to 1620
<b>Modifications</b>	mutated R1275Q
<b>Tags</b>	proprietary tag N-Terminus

## Specifications

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Our **Abpromise guarantee** covers the use of **ab186455** in the following tested applications.

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

<b>Applications</b>	SDS-PAGE Functional Studies
<b>Form</b>	Liquid

## Preparation and Storage

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<b>Stability and Storage</b>	Shipped on Dry Ice. Upon delivery aliquot. Store at -80°C. Avoid freeze / thaw cycle. pH: 7.5 Preservative: 1.02% Imidazole Constituents: 0.81% Sodium phosphate, 1.75% Sodium chloride, 0.002% PMSF, 0.005% 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

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<b>Function</b>	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.
<b>Tissue specificity</b>	Expressed in brain and CNS. Also expressed in the small intestine and testis, but not in normal lymphoid cells.
<b>Involvement in disease</b>	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

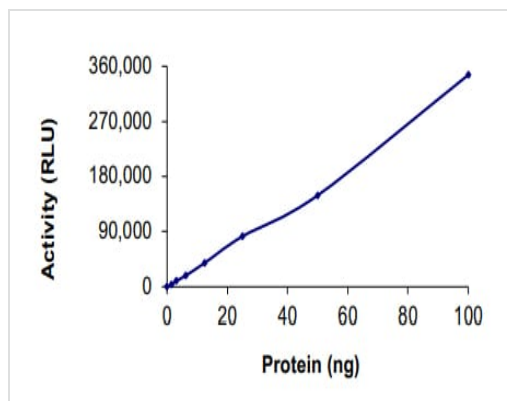
Phosphorylated at tyrosine residues by autocatalysis, which activates kinase activity. In cells not stimulated by a ligand, receptor protein tyrosine phosphatase beta and zeta complex (PTPRB/PTPRZ1) dephosphorylates ALK at the sites in ALK that are undergoing autophosphorylation through autoactivation.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

N-glycosylated.

#### Cellular localization

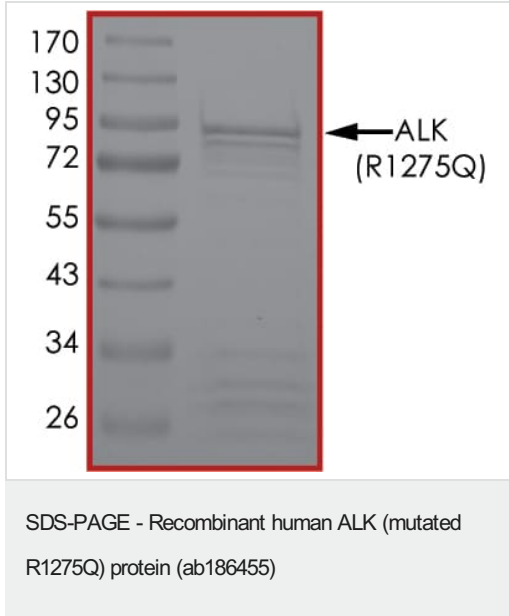
Cell membrane. Membrane attachment was crucial for promotion of neuron-like differentiation and cell proliferation arrest through specific activation of the MAP kinase pathway.

#### Images

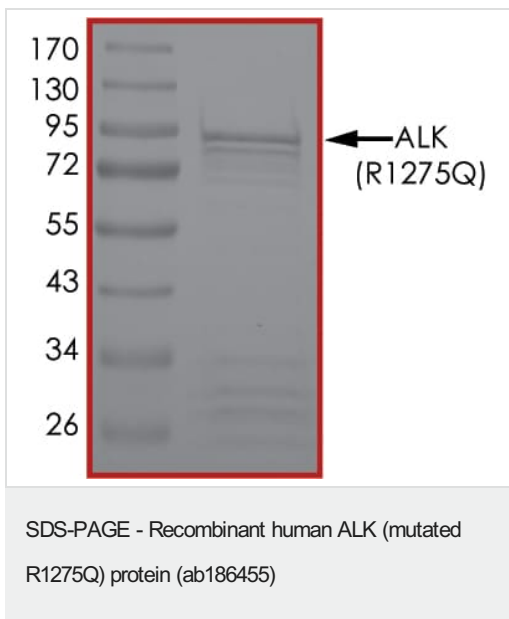


The specific activity of ALK (ab186455) was determined to be 10 nmol/min/mg as per activity assay protocol and was equivalent to 21 nmol/min/mg as per radiometric assay

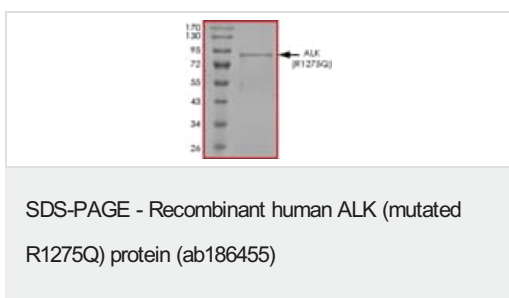
Functional Studies - Recombinant human ALK (mutated R1275Q) protein (ab186455)



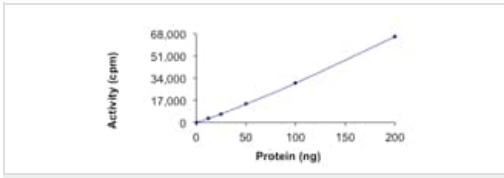
SDS PAGE analysis of ab186455



SDS PAGE analysis of ab186455



SDS-PAGE analysis of ab186455.



Kinase Assay demonstrating the specific activity of ab186455.

Functional Studies - Recombinant human ALK  
(mutated R1275Q) protein (ab186455)

**Please note:** All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

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