

Product datasheet

Recombinant human ALK protein (Active) ab187246

[1 References](#) [5 Images](#)

Description

Product name	Recombinant human ALK protein (Active)
Biological activity	The specific activity of ab187246 was determined to be 24 nmol/min/mg.
Purity	> 75 % 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 KTLPEVCSEQ DELDLMEALIISKFNHQNIVRCIGVSLQSLPRFILLELMAG GDLKSFLR ETRPRPSQPSSLAMLDLLHWARDIACGCQYLEENHFHHRDI AARNCLLTC PGPGRVAKIGDFGMARDIYRASYYRKGGCAMLPVKWMPP EAFMEGIFTSK TDTWSFGVLLWEIFSLGYMPYPSKSNQEVLEFVTSGGRM DPPKNCGPVY RIMTQCWQHQPEDRPNFAILERIEYCTQDPDVINTALPIEY GPLVEEEE KVPVRPKDPEGVPPLLVSQQAKREEERSPAAPPPLPTTS SGKAAKKPTAA EISVRVPRGPAVEGGHVNMAFSQSNPPSELHKVHGSRNK PTSLWNPTYGS WFTEKPTKNNPIAKKEPHDRGNLGLEGSCVPPNVATG RLPGASLLLEP SSLTANMKEVPLFRLRHFP CGNVNYGYQQQGLPLEAATA PGAGHYEDTIL KSKNSMNQPGP
Predicted molecular weight	90 kDa including tags

Amino acids	1060 to 1620
Tags	proprietary tag N-Terminus
Additional sequence information	(NM_004304).

Specifications

Our **Abpromise guarantee** covers the use of **ab187246** in the following tested applications.

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

Applications Functional Studies

SDS-PAGE

Western blot

Form Liquid

Additional notes **ab204862** (IRS1 peptide) can be utilized as a substrate for assessing kinase activity.

Endogenous insect GST binding proteins are found in the final product. The final product is not purified from these contaminants (~26 kDa) as they do not affect the function and activity of the recombinant protein.

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: 0.71% Sodium phosphate, 1.75% 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.

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

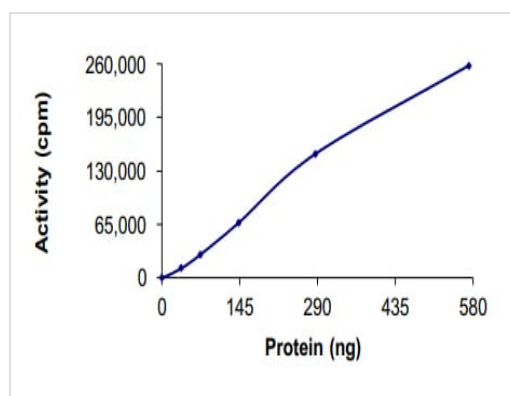
Phosphorylated at tyrosine residues by autocatalysis, which activates kinase activity. In cells not stimulated by a ligand, receptor protein tyrosine phosphatase beta and zeta complex (PTPRB/PTPRZ1) dephosphorylates ALK at the sites in ALK that are undergoing autophosphorylation through autoactivation.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

N-glycosylated.

Cellular localization

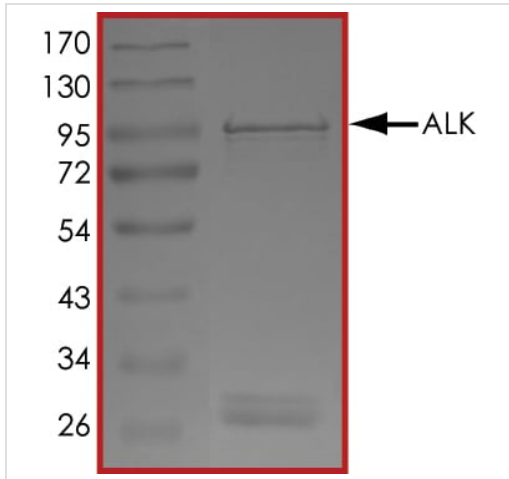
Cell membrane. Membrane attachment was crucial for promotion of neuron-like differentiation and cell proliferation arrest through specific activation of the MAP kinase pathway.

Images



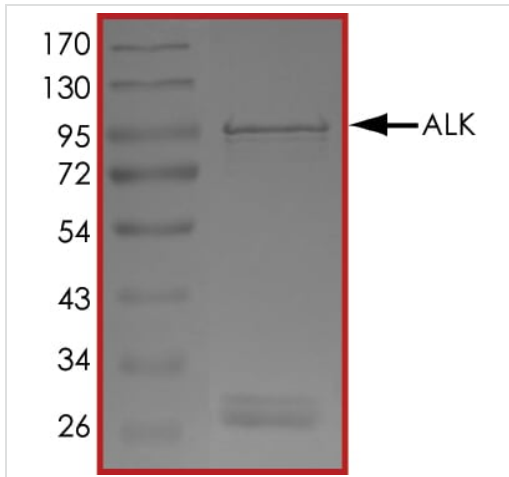
The specific activity of ALK (ab187246) was determined to be 24.4 nmol/min/mg as per activity assay protocol

Functional Studies - Recombinant human ALK protein (Active) (ab187246)



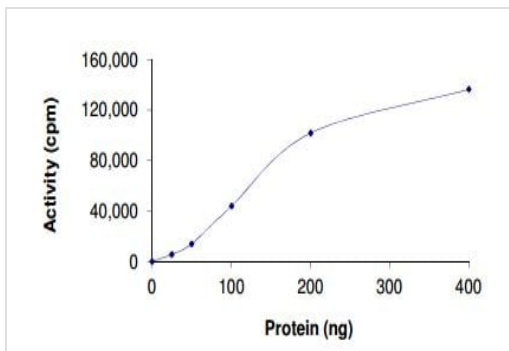
SDS PAGE analysis of ab187246

SDS-PAGE - Recombinant human ALK protein
(Active) (ab187246)



SDS PAGE analysis of ab187246

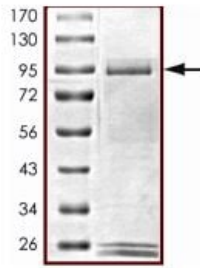
SDS-PAGE - Recombinant human ALK protein
(Active) (ab187246)



Kinase assay showing the specific activity of ab187246 as 24 nmol/min/mg.

Functional Studies - Recombinant human ALK protein (Active) (ab187246)

SDS-PAGE analysis of ab187246.



SDS-PAGE - Recombinant human ALK protein
(Active) (ab187246)

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

Our Abpromise to you: Quality guaranteed and expert technical support

- Replacement or refund for products not performing as stated on the datasheet
- Valid for 12 months from date of delivery
- Response to your inquiry within 24 hours
- We provide support in Chinese, English, French, German, Japanese and Spanish
- Extensive multi-media technical resources to help you
- We investigate all quality concerns to ensure our products perform to the highest standards

If the product does not perform as described on this datasheet, we will offer a refund or replacement. For full details of the Abpromise, please visit <https://www.abcam.com/abpromise> or contact our technical team.

Terms and conditions

- Guarantee only valid for products bought direct from Abcam or one of our authorized distributors