abcam

ab254341

Anti-ABL1 antibody [EPR23406-32]

Recombinant | RabMAb | KO Validated | 20ul selling size

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Preservative: 0.01% Sodium azide Constituents: PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR23406-32
Purification technique	Affinity purification Protein A
Concentration	0.536 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Not recommended

Species	Mouse, Human, Rat
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

IHC-P

Not recommended

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

ICC/IF

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/500
Notes	-

Not recommended

Species	Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt

Not recommended

Species	Mouse, Human, Rat
Dilution info	-
Notes	-

Target data

See full target information ABL1

Function

Non-receptor tyrosine-protein kinase that plays a role in many key processes linked to cell growth and survival such as cytoskeleton remodeling in response to extracellular stimuli, cell motility and adhesion, receptor endocytosis, autophagy, DNA damage response and apoptosis. Coordinates actin remodeling through tyrosine phosphorylation of proteins controlling cytoskeleton dynamics like WASF3 (involved in branch formation); ANXA1 (involved in membrane anchoring); DBN1, DBNL, CTTN, RAPH1 and ENAH (involved in signaling); or MAPT and PXN (microtubule-binding proteins). Phosphorylation of WASF3 is critical for the stimulation of lamellipodia formation and cell migration. Involved in the regulation of cell adhesion and motility through phosphorylation of key regulators of these processes such as BCAR1, CRK, CRKL, DOK1, EFS or NEDD9 (PubMed:22810897). Phosphorylates multiple receptor tyrosine kinases and more particularly promotes endocytosis of EGFR, facilitates the formation of neuromuscular synapses through MUSK, inhibits PDGFRB-mediated chemotaxis and modulates the endocytosis of activated B-cell receptor complexes. Other substrates which are involved in endocytosis regulation are the caveolin (CAV1) and RIN1. Moreover, ABL1 regulates the CBL family of ubiquitin ligases that drive receptor down-regulation and actin remodeling. Phosphorylation of CBL leads to increased EGFR stability. Involved in late-stage autophagy by regulating positively the trafficking and function of lysosomal components. ABL1 targets to mitochondria in response to oxidative stress and thereby mediates mitochondrial dysfunction and cell death. In response to oxidative stress, phosphorylates serine/threonine kinase PRKD2 at 'Tyr-717' (PubMed:28428613). ABL1 is also translocated in the nucleus where it has DNA-binding activity and is involved in DNA-damage response and apoptosis. Many substrates are known mediators of DNA repair: DDB1, DDB2, ERCC3, ERCC6, RAD9A, RAD51, RAD52 or WRN. Activates the proapoptotic pathway when the DNA damage is too severe to be repaired. Phosphorylates TP73, a primary regulator for this type of damage-induced apoptosis. Phosphorylates the caspase CASP9 on 'Tyr-153' and regulates its processing in the apoptotic response to DNA damage.

Phosphorylates PSMA7 that leads to an inhibition of proteasomal activity and cell cycle transition blocks. ABL1 also acts as a regulator of multiple pathological signaling cascades during infection. Several known tyrosine-phosphorylated microbial proteins have been identified as ABL1 substrates. This is the case of A36R of Vaccinia virus, Tir (translocated intimin receptor) of pathogenic E.coli and possibly Citrobacter, CagA (cytotoxin-associated gene A) of H.pylori, or AnkA (ankyrin repeat-containing protein A) of A.phagocytophilum. Pathogens can highjack ABL1 kinase signaling to reorganize the host actin cytoskeleton for multiple purposes, like facilitating intracellular movement and host cell exit. Finally, functions as its own regulator through autocatalytic activity as well as through phosphorylation of its inhibitor, ABI1. Regulates T-cell differentiation in a TBX21-dependent manner (By similarity). Positively regulates chemokine-mediated T-cell migration, polarization, and homing to lymph nodes and immune-challenged tissues, potentially via activation of NEDD9/HEF1 and RAP1 (By similarity). Phosphorylates TBX21 on tyrosine residues leading to an enhancement of its transcriptional activator activity (By similarity).

Storage

Shipped at conditions	Conditional Ambient
Appropriate short-term storage duration	1-2 weeks
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	-20°C
Aliquoting information	Upon delivery aliquot
Storage information	Avoid freeze / thaw cycle

Notes

Patented technology
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

What are the advantages of a recombinant monoclonal antibody?
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

Activity summary	ABL1 also referred to as ABL-1 or ABL1 protein is a non-receptor tyrosine kinase with a mass of approximately 120 kDa. It is found throughout the body in diverse tissues with significant expression in the brain testes and hematopoietic cells. This protein consists of several functional domains including SH3 SH2 and a kinase domain that facilitate its interaction with various cellular components. ABL1 kinase plays a central role in cell differentiation division and stress response reflecting its mechanical versatility in cellular signaling.
Biological function summary	ABL1 functions by regulating key processes like cell cycle progression actin dynamics and cell adhesion. ABL1 participates as part of larger protein complexes that modulate cellular movement and gene transcription. When activated it phosphorylates a range of substrates that leads to various cellular outcomes. ABL1 operates in the cytoplasm and nucleus influencing both cytoskeletal rearrangement and DNA repair which highlights its critical function in maintaining cellular integrity and response to damage.
Pathways	ABL1 interacts in both the mitogenic and apoptotic pathways including involvement in the MAPK and PI3K/AKT pathways. ABL1 interfaces with proteins like CRK and GRB2 in these pathways integrating signals that determine cell fate decisions. Through its kinase activity ABL1 mediates signaling cascades that impact cellular growth and survival responding dynamically to internal and external cues.
Associated diseases and disorders	ABL1 is notoriously implicated in chronic myeloid leukemia (CML) and acute lymphoblastic leukemia (ALL). The fusion protein BCR-ABL1 resulting from chromosomal translocation drives oncogenic signals that promote uncontrolled cell proliferation. The aberrant activity of BCR-ABL1 disrupts normal cellular regulation and interacts with proteins such as STAT5 enhancing leukemogenesis. Targeted therapies like tyrosine kinase inhibitors specifically hinder BCR-ABL1 activity demonstrating ABL1's importance in cancer pathology and treatment.

Product promise

Tested

We have tested this species and application combination and it works. It is covered by our product promise.

Expected

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

Predicted

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

Not recommended

We do not recommend this combination. It is not covered by our product promise.

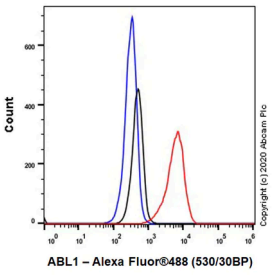
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

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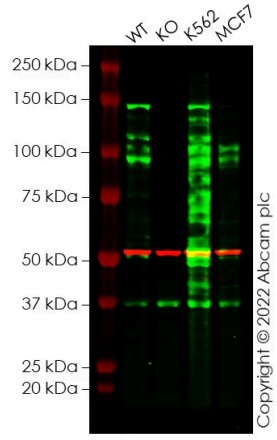
5 product images



Flow Cytometry (Intracellular) - Anti-ABL1 antibody [EPR23406-32] (ab254341)

ABL1 Flow Cytometry (Intracellular) staining using rabbit Anti-ABL1 antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol-permeabilized K-562 (Human chronic myelogenous leukemia lymphoblast) cells labelling ABL1 with ab254341 at 1/500 dilution (0.1µg) (Red) compared with a Rabbit monoclonal IgG (ab172730) (Black) isotype control and an unlabelled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/2000 dilution was used as the secondary antibody.



Western blot - Anti-ABL1 antibody [EPR23406-32] (ab254341)

ABL1 Western blot staining using rabbit Anti-ABL1 antibody

False colour image of Western blot: Anti-ABL1 antibody [EPR23406-32] staining at 1/1000 dilution, shown in green; Mouse anti-Alpha Tubulin [DM1A] (ab7291) loading control staining at 1/20000 dilution, shown in red. In Western blot, ab254341 was shown to bind specifically to ABL1. A band was observed at 123 kDa in wild-type HeLa cell lysates with no signal observed at this size in ABL1 knockout cell line ab277152 (knockout cell lysate ab277194). To generate this image, wild-type and ABL1 knockout HeLa cell lysates were analysed. First, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 5 % milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit IgG H&L 800CW and Goat anti-Mouse IgG H&L 680RD at 1/20000 dilution.
All lanes:
Western blot - Anti-ABL1 antibody [EPR23406-32] (ab254341) at 1/1000 dilution

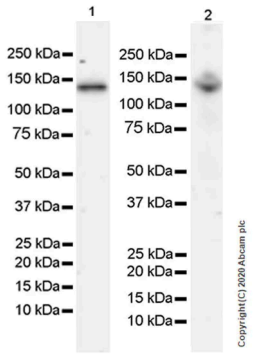
Lane 1:
Wild-type HeLa cell lysate at 20 µg

Lane 3:
K562 cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 122 kDa

Observed band size: 130 kDa



Western blot - Anti-ABL1 antibody [EPR23406-32] (ab254341)

ABL1 Western blot staining using rabbit Anti-ABL1 antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST.
Fresh lysates are recommended for loading to minimize target degradation.

Exposure time: 48 seconds.

All lanes:
Western blot - Anti-ABL1 antibody [EPR23406-32] (ab254341) at 1/1000 dilution

Lane 1:
MCF7 (human breast adenocarcinoma epithelial cell) whole cell lysate at 10 µg

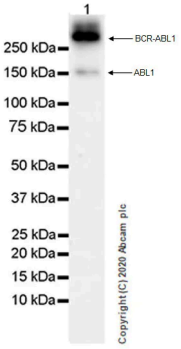
Lane 2:
Daudi (human burkitts lymphoma lymphoblast) whole cell lysate at 10 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) at 1/100000 dilution

Predicted band size: 122 kDa

Observed band size: 135 kDa



Western blot - Anti-ABL1 antibody [EPR23406-32] (ab254341)

ABL1 Western blot staining of K-562 (human chronic myelogenous leukemia lymphoblast) whole cell lysate using rabbit Anti-ABL1 antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST.
Exposure time: 48 seconds.

All lanes:
Western blot - Anti-ABL1 antibody [EPR23406-32] (ab254341) at 1/1000 dilution

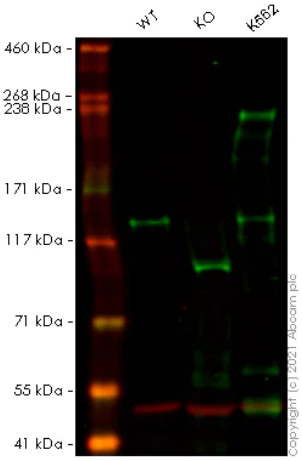
All lanes:
K-562 (human chronic myelogenous leukemia lymphoblast) whole cell lysate at 10 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated (ab97051) at 1/100000 dilution

Predicted band size: 122 kDa

Observed band size: 135 kDa, 210 kDa



Western blot - Anti-ABL1 antibody [EPR23406-32] (ab254341)

ABL1 Western blot staining using rabbit Anti-ABL1 antibody

Lanes 1 - 3: Merged signal (red and green). Green - ab254341 observed at 130 kDa. Red - loading control, ab7291 (Mouse anti-Alpha Tubulin [DM1A]) observed at 55 kDa.
ab254341 was shown to react with ABL1 in wild-type HeLa cells in western blot. The bands observed in ABL1 knockout cell line ab265612 (ABL1 knockout cell lysate ab263077) below 130 kDa may represent truncated forms and cleaved fragments. This has not been investigated further. HeLa wild-type and ABL1 knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 3% milk in TBS-T (0.1 % Tween®) before incubation with ab254341 and ab7291 (Mouse anti-Alpha Tubulin [DM1A]) overnight at 4°C at a 1:1000 dilution and a 1:20000 dilution respectively. Blots were incubated with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (ab216776) secondary antibodies at 1:20000 dilution for 1 h at room temperature before imaging.

All lanes:
Western blot - Anti-ABL1 antibody [EPR23406-32] (ab254341) at 1/1000 dilution

Lane 1:
Wild-type HeLa cell lysate at 20 µg

Lane 2:
ABL1 knockout HeLa cell lysate at 20 µg

Lane 2:
Western blot - Human ABL1 knockout HeLa cell line (ab265612)

Lane 3:
K562 cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 122 kDa

Observed band size: 130 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.