abcam

ab243636

Anti-ADK antibody [EPR23166-143]

Recombinant | RabMAb | KO Validated

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	EPR23166-143
Purification technique	Affinity purification Protein A
Concentration	0.662 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

WB

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

IHC-P

Tested

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

Species	Human
Dilution info	1/1000
Notes	-

ICC/IF

Not recommended

Species	Mouse, Human, Rat
Dilution info	-

Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/600
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
Notes	-

Target data

See full target information ADK

Function

Adenosine kinase that mediates the phosphorylation of the purine nucleoside adenosine at the 5' position in an ATP-dependent manner: catalyzes phosphorylation of both unmodified and modified adenosines (PubMed:21963049, PubMed:40840445, PubMed:6246102, PubMed:8577746, PubMed:9070863). Plays a key role in the detoxification of modified adenosines containing N(6)-methylated adenine (m6A) post-transcriptional modification (PubMed:40840445). Modified nucleosides are derived from the degradation of RNAs (mRNAs, rRNAs and tRNAs) and possess intrinsic cytotoxicity and must be cleared to prevent metabolic dysfunction (PubMed:40840445). Catalyzes the phosphorylation of the free cytosolic methylated adenosine nucleotides N(6)-methyladenosine (m6A), N(6),N(6)-dimethyladenosine (m6,6A) and N(6)-isopentenyladenosine (i6A) into adenosine monophosphate (AMP) intermediates that are further detoxified by MAPDA/ADAL (PubMed:40840445).

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	Adenosine kinase (ADK) also known by its alternative name ATP:adenosine 5'-phosphotransferase is an enzyme with a molecular mass of approximately 40 kDa. This enzyme catalyzes the transfer of a phosphate group from ATP to adenosine forming AMP. ADK is expressed in several tissues with significant presence in the liver brain and lungs. This distribution suggests its versatile role in organ-specific metabolism and regulatory processes.
Biological function summary	The enzyme modulates cellular adenosine levels which influences various physiological functions such as sleep regulation and immune responses. ADK does not operate as part of a larger protein complex but acts independently to maintain intracellular energy balance by regulating the pools of adenosine and AMP. The enzyme activity affects purine metabolism important in diverse cellular activities.
Pathways	The activity of adenosine kinase fits prominently into the purine metabolism and energy homeostasis pathways. Its function maintains the cellular concentrations of adenosine a nucleotide affecting cellular signaling pathways including the AMP-activated protein kinase (AMPK) pathway. ADK interacts with enzymes like adenosine deaminase which collectively orchestrate the purine salvage pathway—pivotal in nucleotide recycling.
Associated diseases and disorders	Irregularities in ADK function have implications in neurological disorders and liver diseases. Abnormal ADK activity links to epilepsy due to its role in controlling

adenosine concentrations affecting neurotransmitter release. Liver diseases such as hepatic steatosis have shown associations with altered ADK function impacting energy balance. The interplay with proteins such as AMP-activated protein kinase indicates potential therapeutic targets in disorders where metabolic regulation is compromised.

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

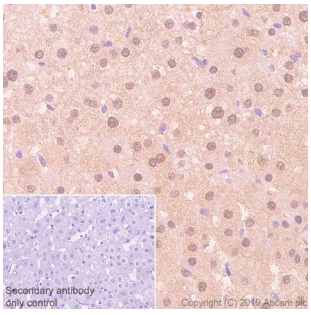
We do not recommend this combination. It is not covered by our product promise.

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.

8 product images

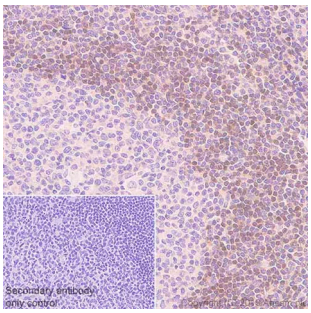


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ADK antibody [EPR23166-143] (ab243636)

ADK Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ADK antibody

Immunohistochemical analysis of paraffin-embedded human liver tissue labeling ADK with ab243636 at 1/1000 followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Nuclear and cytoplasmic staining on human liver is observed. The section was incubated with ab243636 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with hematoxylin.
Secondary antibody only control: Ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution 2) for 20mins.

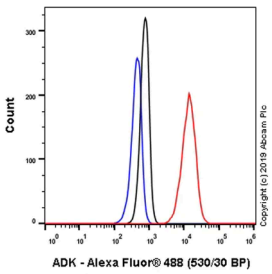


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ADK antibody [EPR23166-143] (ab243636)

ADK Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ADK antibody

Immunohistochemical analysis of paraffin-embedded human tonsil tissue labeling ADK with ab243636 at 1/1000 followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Nuclear and weak cytoplasmic staining on human tonsil is observed. The section was incubated with ab243636 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with hematoxylin.
Secondary antibody only control: Ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

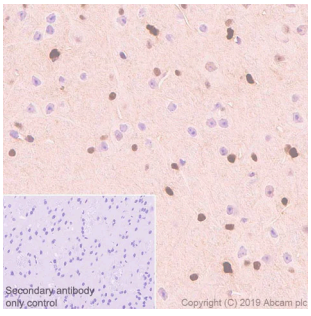
Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution 2) for 20mins.



Flow Cytometry (Intracellular) - Anti-ADK antibody [EPR23166-143] (ab243636)

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

Intracellular flow cytometric analysis of 4% paraformaldehyde fixed 90% methanol permeabilized PC-3 (Human prostate adenocarcinoma epithelial cell) cells labeling ADK with ab243636 at 1\500 (Red) compared with a Rabbit monoclonal IgG (ab172730) / Black isotype control and an unlabeled control (cells without incubation with primary antibody and secondary antibody) (Blue). A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/2000 was used as the secondary antibody.

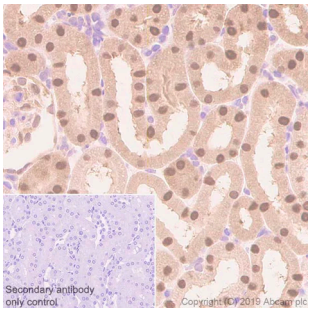


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ADK antibody [EPR23166-143] (ab243636)

ADK Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ADK antibody

Immunohistochemical analysis of paraffin-embedded mouse cerebrum tissue labeling ADK with ab243636 at 1/1000 followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Nuclear and cytoplasmic staining on mouse cerebrum is observed. The section was incubated with ab243636 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with hematoxylin.
Secondary antibody only control: Ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution 2) for 20mins.

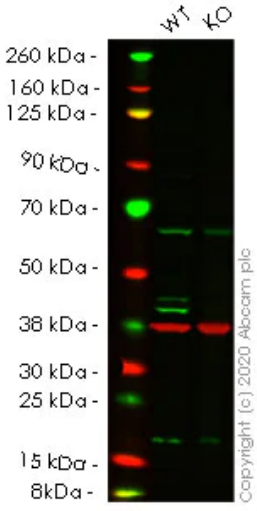


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-ADK antibody [EPR23166-143] (ab243636)

ADK Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-ADK antibody

Immunohistochemical analysis of paraffin-embedded rat kidney tissue labeling ADK with ab243636 at 1/1000 followed by a ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101). Nuclear and cytoplasmic staining on rat kidney is observed. The section was incubated with ab243636 for 30 mins at room temperature. The immunostaining was performed on a Leica Biosystems BOND® RX instrument. Counterstained with hematoxylin.
Secondary antibody only control: Ready to use Rabbit specific IHC polymer detection kit HRP/DAB (ab209101).

Heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0, epitope retrieval solution 2) for 20mins.



Western blot - Anti-ADK antibody [EPR23166-143] (ab243636)

ADK Western blot staining using rabbit Anti-ADK antibody

Lanes 1- 2: Merged signal (red and green). Green - ab243636 observed at 41 kDa. Red - Anti-GAPDH antibody [6C5] - Loading Control (ab8245) observed at 37 kDa.
ab243636 was shown to react with Adenosine kinase in wild-type HeLa cells in western blot. Loss of signal was observed when knockout cell line ab265646 (knockout cell lysate ab257343) was used. Wild-type HeLa and ADK knockout HeLa cell lysates were subjected to SDS-PAGE. Membrane was blocked for 1 hour at room temperature in 0.1% TBST with 3% non-fat dried milk. ab243636 and Anti-GAPDH antibody [6C5] - Loading Control (ab8245) overnight at 4°C at a 1 in 1000 dilution and a 1 in 20000 dilution respectively. Blots were developed with Goat anti-Rabbit IgG H&L (IRDye®800CW) preadsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye®680RD) preadsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 hour at room temperature before imaging.

All lanes:
Western blot - Anti-ADK antibody [EPR23166-143] (ab243636) at 1/1000 dilution

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

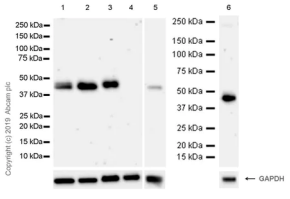
Lane 2:
ADK knockout HeLa cell lysate at 20 µg

Lane 2:
Western blot - Human ADK knockout HeLa cell line (ab265646)

Performed under reducing conditions.

Predicted band size: 41 kDa

Observed band size: 41 kDa



Western blot - Anti-ADK antibody [EPR23166-143] (ab243636)

ADK Western blot staining using rabbit Anti-ADK antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST.

The expression profile/ molecular weight observed is consistent with what has been described in the literature (PMID: 29038540, 30944910).
All lanes:
Western blot - Anti-ADK antibody [EPR23166-143] (ab243636) at 1/1000 dilution

Lane 1:
HeLa (human cervix adenocarcinoma epithelial cell), whole cell lysate at 20 µg

Lane 2:
HepG2 (human hepatocellular carcinoma epithelial cell), whole cell lysate at 20 µg

Lane 3:
Wild-type HAP1 whole cell lysate at 40 µg

Lane 4:
ADK knockout HAP1 whole cell lysate at 40 µg

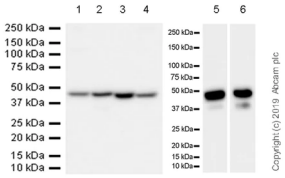
Lane 5:
Hepa1-6 (mouse hepatoma epithelial cell), whole cell lysate at 20 µg

Lane 6:
PC-3 (human prostate adenocarcinoma epithelial cell), whole cell lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 41 kDa



Western blot - Anti-ADK antibody [EPR23166-143] (ab243636)

ADK Western blot staining using rabbit Anti-ADK antibody

Blocking and diluting buffer and concentration: 5% NFDM/TBST.
The lower band (38 kDa) in liver lysates represents ADK-short isoform.

The expression profile/ molecular weight observed is consistent with what has been described in the literature (PMID: 29038540, 30944910).

Exposure time: Lanes 1-4: 10 seconds; Lanes 5-6: 26 seconds.

All lanes:
Western blot - Anti-ADK antibody [EPR23166-143] (ab243636) at 1/1000 dilution

Lane 1:
C6 (rat glial tumor glial cell), whole cell lysate at 20 µg

Lane 2:
RAW264.7 (mouse Abelson murine leukemia virus-induced tumor macrophage), whole cell lysate at 20 µg

Lane 3:
PC-12 (rat adrenal gland pheochromocytoma), whole cell lysate at 20 µg

Lane 4:
NIH/3T3 (mouse embryonic fibroblast), whole cell lysate at 20 µg

Lane 5:
Mouse liver lysate at 20 µg

Lane 6:

Rat liver lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/100000 dilution

Predicted band size: 41 kDa

Observed band size: 41 kDa

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