abcam

ab239080

Anti-DGKZ/DGK-zeta antibody [EPR22040-72]

Recombinant | RabMAb | Advanced Validation | 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	EPR22040-72
Purification technique	Affinity purification Protein A
Concentration	0.49 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IP

Tested

Species	Human
Dilution info	1/30
Notes	-

Expected

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

mIHC

Tested

Species	Mouse
Dilution info	1/5000
Notes	-

Expected

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

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Expected

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

IHC-P

Tested

Species	Mouse
Dilution info	1/4000
Notes	-

Species	Rat
Dilution info	1/4000
Notes	-

Species	Human
Dilution info	1/4000
Notes	-

Target data

See full target information DGKZ

Function	Diacylglycerol kinase that converts diacylglycerol/DAG into phosphatidic acid/phosphatidate/PA and regulates the respective levels of these two bioactive lipids (PubMed:15544348, PubMed:18004883, PubMed:19744926, PubMed:22108654, PubMed:22627129, PubMed:23949095, PubMed:9159104). Thereby, acts as a central switch between the signaling pathways activated by these second messengers with different cellular targets and opposite effects in numerous biological processes (PubMed:15544348, PubMed:18004883, PubMed:19744926, PubMed:22108654, PubMed:22627129, PubMed:23949095, PubMed:9159104). Also plays an important role in the biosynthesis of complex

lipids (Probable). Does not exhibit an acyl chain-dependent substrate specificity among diacylglycerol species (PubMed:19744926, PubMed:22108654, PubMed:9159104). Can also phosphorylate 1-alkyl-2-acylglycerol in vitro but less efficiently and with a preference for alkylacylglycerols containing an arachidonoyl group (PubMed:15544348, PubMed:19744926, PubMed:22627129). The biological processes it is involved in include T cell activation since it negatively regulates T-cell receptor signaling which is in part mediated by diacylglycerol (By similarity). By generating phosphatidic acid, stimulates PIP5KIA activity which regulates actin polymerization (PubMed:15157668). Through the same mechanism could also positively regulate insulin-induced translocation of SLC2A4 to the cell membrane (By similarity). Isoform 1. Regulates RASGRP1 activity. Isoform 2. Does not regulate RASGRP1 activity.

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	DGKZ also known as DGK-zeta or DGKζ is an enzyme that belongs to the diacylglycerol kinase family and plays an important role in lipid signaling pathways. The 'zeta' isoform of DGK sometimes noted in scientific literature as DGK ART and DGK MEXICO catalyzes the conversion of diacylglycerol (DAG) to phosphatidic acid (PA) by ATP-dependent phosphorylation impacting signal transduction. DGKZ has a molecular mass of approximately 115 kDa. It shows expression in various tissues including brain heart and skeletal muscle with higher expression levels typically seen in the nervous system where it affects neurotransmitter signaling.
Biological function summary	DGKZ influences cellular processes such as growth differentiation and apoptosis by regulating DAG and PA levels. It forms part of a complex network of proteins involved in intracellular signaling cascades exerting effects on protein kinase C (PKC) activity. The regulatory function of DGKZ within cellular activity highlights its role in maintaining normal cellular homeostasis and responding to extracellular signals. Its enzymatic activity influences DAG-mediated pathways which are important for the activation and deactivation of downstream signaling proteins.
Pathways	DGKZ plays a critical role within the signaling pathways such as the phosphoinositide signaling and mTOR pathways. It serves as an important modulator of lipid signaling within the diacylglycerol- and phosphatidic acid-mediated signaling pathways impacting protein interactions and signaling mechanisms. Other proteins related through these pathways include PKC and mTOR with which DGKZ interacts to modulate functions such as cell proliferation and survival. The enzymatic conversion of DAG to PA by DGKZ actively regulates the availability of these lipid signaling molecules and therefore modulates their downstream effects.
Associated diseases and disorders	DGKZ has associations with neurological disorders and cancer. Abnormal regulation or expression of DGKZ contributes to pathologies such as Alzheimer's disease where impaired lipid signaling affects neuronal function and survival. Additionally its dysregulation may promote cancer progression through aberrant cell signaling pathways. DGKZ interacts with proteins like PKC which play a role in these diseases making it a potential therapeutic target. Understanding its function and interactions helps offer insights into the development of targeted therapies for these conditions.

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

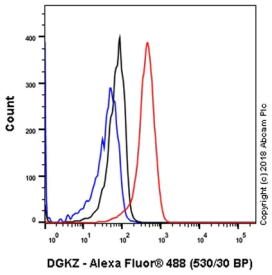
We do not recommend this combination. It is not covered by our product promise.

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.

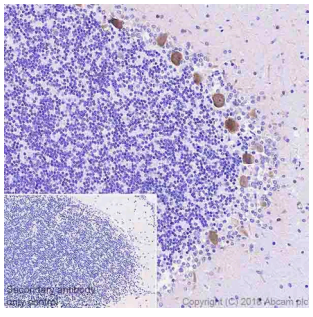
8 product images



Flow Cytometry (Intracellular) - Anti-DGKZ/DGK-zeta antibody [EPR22040-72] (ab239080)

DGKZ/DGK-zeta Flow Cytometry (Intracellular) staining using rabbit Anti-DGKZ/DGK-zeta antibody

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol permeabilzedJurkat (human T cell leukemia cell line from peripheral blood) cell line labeling DGKZ/DGK-zeta with ab239080 at 1/600 dilution (Red) compared with a Rabbit monoclonal IgG (ab172730, Black) isotype control, and an unlabeled control (Cell without incubation with primary antibody and secondary antibody, Blue).
Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) at 1/2000 wasused as the secondary antibody.

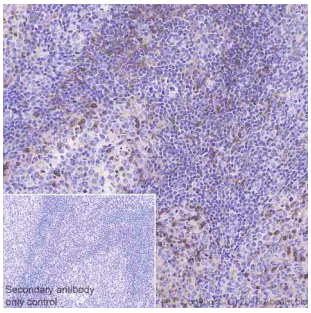


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-DGKZ/DGK-zeta antibody [EPR22040-72] (ab239080)

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

Immunohistochemical analysis of paraffin-embedded human cerebellum tissue labeling DGKZ/DGK-zeta with ab239080 at 1/4000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) ready to use. Cytoplasmic and nuclear staining on Purkinje cells of human cerebellum (PMID: 14511325) (PMID: 24119575) is observed. Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) ready to use.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

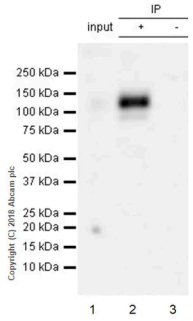


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-DGKZ/DGK-zeta antibody [EPR22040-72] (ab239080)

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

Immunohistochemical analysis of paraffin-embedded human tonsil tissue labeling DGKZ/DGK-zeta with ab239080 at 1/4000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) ready to use. Cytoplasmic staining on subset of immune cells in human tonsil (PMID: 24573202) is observed. Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) ready to use.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

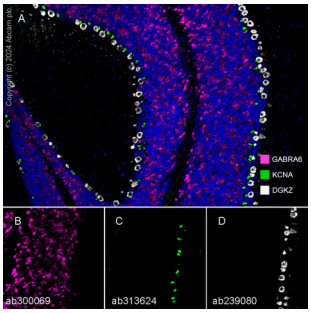


Immunoprecipitation - Anti-DGKZ/DGK-zeta antibody [EPR22040-72] (ab239080)

DGKZ/DGK-zeta was immunoprecipitated from 0.35 mg of Jurkat (human T cell leukemia cell line from peripheral blood) whole cell lysate with ab239080 at 1/30 dilution. Western blot was performed from the immunoprecipitate using ab239080 at 1/1000 dilution. VeriBlot for IP Detection Reagent (HRP) (ab131366), was used for detection at 1/1000 dilution.
Lane 1: Jurkat whole cell lysat 10 µg (input).
Lane 2: ab239080 IP in Jurkat whole cell lysate.
Lane 3: Rabbit monoclonal IgG (ab172730) instead of ab239080 in Jurkat whole cell lysate (-).
Blocking and dilution buffer and concentration: 5% NFDM/TBST.
Exposure time: 15 seconds.

All lanes:
Immunoprecipitation - Anti-DGKZ/DGK-zeta antibody [EPR22040-72] (ab239080)

Predicted band size: 124 kDa



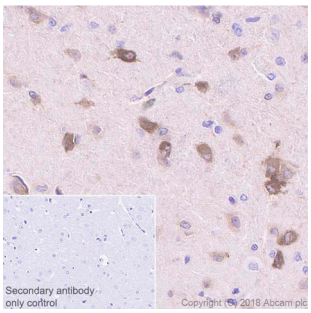
Multiplex immunohistochemistry - Anti-DGKZ/DGK-zeta antibody [EPR22040-72] (ab239080)

Fluorescence multiplex immunohistochemical analysis of mouse cerebellum (formalin-fixed paraffin-embedded section).

Panel A: merged staining of anti-GABRA6 (magenta; Opal™690), anti-KCNA (green; Opal™520) and anti-DGKZ (gray; Opal™570) on mouse cerebellum.
Panel B: anti-GABRA6 staining granule cells in mouse cerebellum.
Panel C: anti-KCNA staining basket cells in mouse cerebellum.
Panel D: anti-DGKZ staining Purkinje cells in mouse cerebellum.
Nuclear DNA was labeled with DAPI (shown in blue).
The section was incubated in three rounds of staining: in the order of ab300069 at a 1/500 dilution, ab313624 at a 1/5000 and ab239080 at a 1/5000 dilution for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, epitope retrieval solution2) for 20 mins.

The immunostaining was performed on a Leica Biosystems BOND® RX instrument with an Opal™ 4-color kit. Image acquisition was performed with Leica SP8 confocal microscope.

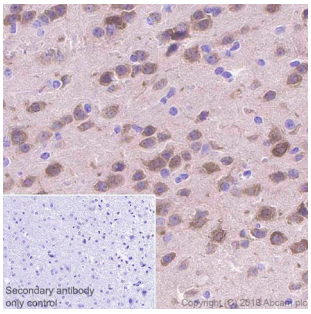


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-DGKZ/DGK-zeta antibody [EPR22040-72] (ab239080)

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

Immunohistochemical analysis of paraffin-embedded rat brain tissue labeling DGKZ/DGK-zeta with ab239080 at 1/4000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) ready to use. Cytoplasmic staining on neurons of rat brain (PMID: 14511325) (PMID: 24119575) is observed. Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) ready to use.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

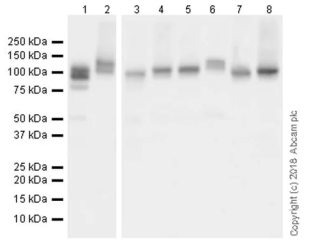


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-DGKZ/DGK-zeta antibody [EPR22040-72] (ab239080)

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

Immunohistochemical analysis of paraffin-embedded mouse brain tissue labeling DGKZ/DGK-zeta with ab239080 at 1/4000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) ready to use. Cytoplasmic and nuclear staining on neurons of mouse brain (PMID: 14511325) (PMID: 24119575) is observed. Counter stained with Hematoxylin.
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (HRP) ready to use.

Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.



Western blot - Anti-DGKZ/DGK-zeta antibody [EPR22040-72] (ab239080)

DGKZ/DGK-zeta Western blot staining using rabbit Anti-DGKZ/DGK-zeta antibody

Blocking/Diluting buffer and concentration: 5% NFDM/TBST.
Exposure time:
Lane 1-2: 15 seconds.
Lane 3-8: 3 seconds.

The lysates were not boiled to prevent the target protein from aggregation. Multiple bands are likely due to isoforms and phosphorylation. The molecular mass of human DGKZ / DGK-zeta is also predicated to be larger than that of rodents. The molecular profile/weight observed is consistent with what has been described in the literature (PMID: 12070163, PMID: 14511325, PMID: 9657393).

All lanes:
Western blot - Anti-DGKZ/DGK-zeta antibody [EPR22040-72] (ab239080) at 1/1000 dilution

Lane 1:

Jurkat (human T cell leukemia cell line from peripheral blood) whole cell lysate at 20 µg

Lane 2:
HuT-78 (human Sezary syndrome cutaneous T lymphocyte), whole cell lysate at 20 µg

Lane 3:
Human cerebellum tissue lysate at 20 µg

Lane 4:
Mouse brain tissue lysate at 20 µg

Lane 5:
Mouse cerebellum tissue lysate at 20 µg

Lane 6:
Mouse thymus tissue lysate at 20 µg

Lane 7:
Rat brain tissue lysate at 20 µg

Lane 8:
Rat cerebellum tissue lysate at 20 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/50000 dilution

Predicted band size: 124 kDa

Observed band size: 90-130 kDa

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