abcam

ab239081

Anti-DGKZ/DGK-zeta antibody [EPR22040-80]

Anti-DGKZ/DGK-zeta antibody [EPR22040-80] (ab239081) is a rabbit monoclonal antibody detecting DGKZ/DGK-zeta in **Western Blot, Flow Cytometry (Intra), IHC-P, ICC/IF, mIHC**. Suitable for **Human, Mouse, Rat**.

- Multiplex IHC validated on the Leica BOND® MAX using Opal reagents
- Biophysical QC for unrivalled batch-batch consistency

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	EPR22040-80
Purification technique	Affinity purification Protein A
Concentration	0.433 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

mIHC

Tested

Species	Human

Dilution info	1/9000
Notes	-

Expected

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

WB

Tested

Species	Human
Dilution info	1/1000
Notes	-

Species	Mouse
Dilution info	1/1000
Notes	-

Species	Rat
Dilution info	1/1000
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/50
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	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Rat
Dilution info	1/4000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

Species	Human
Dilution info	1/4000
Notes	Perform heat-mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol.

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

What is this antibody validated in?
Anti-DGKZ/DGK-zeta antibody [EPR22040-80] (ab239081) is a rabbit recombinant monoclonal antibody and is validated for use in Western Blot (WB), Flow Cytometry (Intra), Immunohistochemistry (IHC-P), Immunocytochemistry/immunofluorescence (ICC/IF), Multiplex IHC (mIHC) in Human, Mouse, Rat samples.

What is the molecular weight of DGKZ/DGK-zeta?
Anti-DGKZ/DGK-zeta [EPR22040-80] (ab239081) specifically detects a band for DGKZ/DGK-zeta (UniProt: Q13574) at a

molecular weight of 124kDa.

Other related products
We have a range of other formats of antibody clone [EPR22040-80] also available for your convenience: ab239081, Carrier free - ab239790, Alexa Fluor® 647 - ab270107

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.

Trial sizes available!
Test your antibody or perform pre-screening before committing to a larger quantity. Sold in 20µl. Discover our selection of trial-size antibodies.

Supplementary info

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

Activity summary	DGKZ also known as DGK-zeta or DGK? 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

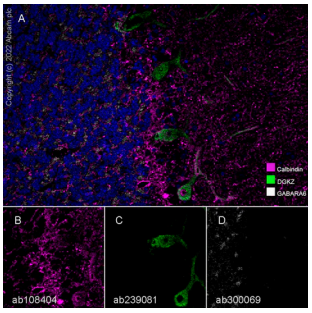
We do not recommend this combination. It is not covered by our product promise.

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.

9 product images



Multiplex immunohistochemistry - Anti-DGKZ/DGK-zeta antibody [EPR22040-80] (ab239081)

DGKZ/DGK-zeta Multiplex immunohistochemistry staining of Human cerebellum using rabbit Anti-DGKZ/DGK-zeta antibody

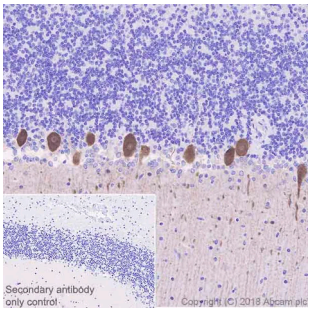
Multiplex immunohistochemistry analysis of formalin/PFA-fixed paraffin-embedded Human cerebellum staining of Calbindin with ab108404 at a 1/1000 dilution, DGKZ/DGK-zeta with ab239081 at 1/5000 dilution, and GABA A Receptor alpha 6 with ab300069 at a 1/500 dilution, followed by a ready to use secondary antibody Opal Polymer HRP Ms + Rb.

Panel A: merged staining of anti-GABA A Receptor alpha 6 (gray; Opal™690), anti-DGKZ/DGK-zeta (green; Opal™520) and anti-Calbindin (magenta; Opal™570) on human cerebellum.
Panel B: anti-Calbindin stained on all layers of cerebellum.
Panel C: anti-DGKZ/DGK-zeta stained on Purkinje cells.
Panel D: anti-GABA A Receptor alpha 6 stained on the granular layer.
Nuclear DNA was labeled with DAPI (shown in blue).

The section was incubated in three rounds of staining: in the order of ab300069, ab239081, and ab108404 for 30 mins at room temperature. Each round was followed by a separate fluorescent tyramide signal amplification system.

Heat mediated antigen retrieval 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.

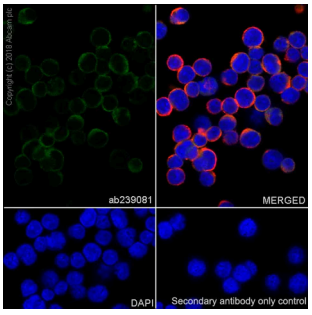


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-DGKZ/DGK-zeta antibody [EPR22040-80] (ab239081)

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 ab239081 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.



Immunocytochemistry/ Immunofluorescence - Anti-DGKZ/DGK-zeta antibody [EPR22040-80] (ab239081)

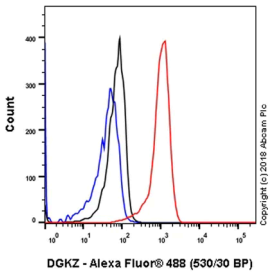
DGKZ/DGK-zeta Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-DGKZ/DGK-zeta antibody

Immunofluorescent analysis of 100% methanol-fixed Jurkat (human T cell leukemia cell line from peripheral blood) cells labeling DGKZ/DGK-zeta with ab239081 at 1/50 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green). Confocal image showing cytoplasmic staining in Jurkat cell line.

Methanol is recommended for fixation as weak signal was observed using 4% PFA.

The nuclear counter stain is DAPI (blue). Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) (red) at 1/200 dilution.

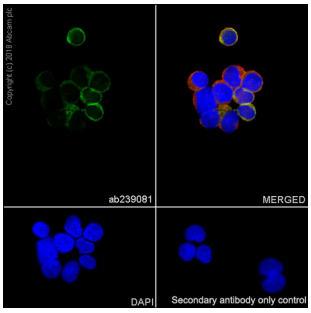
Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution.



Flow Cytometry (Intracellular) - Anti-DGKZ/DGK-zeta antibody [EPR22040-80] (ab239081)

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

Intracellular flow cytometric analysis of 4% paraformaldehyde-fixed, 90% methanol permeabilized Jurkat (human T cell leukemia cell line from peripheral blood) cell line labeling DGKZ/DGK-zeta with ab239081 at 1/600 (red) compared with a Rabbit IgG, monoclonal [EPR25A] - Isotype Control (ab172730) (black) and an unlabeled control (cells without incubation with primary antibody and secondary antibody) (blue). Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) at 1/2000 dilution was used as the secondary antibody.



Immunocytochemistry/ Immunofluorescence - Anti-DGKZ/DGK-zeta antibody [EPR22040-80] (ab239081)

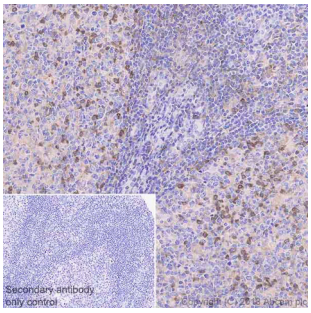
DGKZ/DGK-zeta Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-DGKZ/DGK-zeta antibody

Immunofluorescent analysis of 100% methanol-fixed HuT-78 (human Sezary syndrome cutaneous T lymphocyte cell line) cells labeling DGKZ/DGK-zeta with ab239081 at 1/50 dilution, followed by Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution (green).
Confocal image showing cytoplasmic staining in HuT-78 cell line.

Methanol is recommended for fixation as weak signal was observed using 4% PFA.

The nuclear counter stain is DAPI (blue). Tubulin is detected with Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) (ab195889) (red) at 1/200 dilution.

Secondary antibody only control: Used PBS instead of primary antibody, secondary antibody is Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) (ab150077) secondary antibody at 1/1000 dilution.

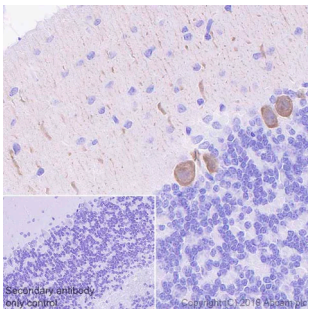


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-DGKZ/DGK-zeta antibody [EPR22040-80] (ab239081)

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 ab239081 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.

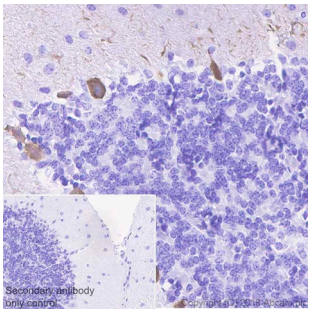


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-DGKZ/DGK-zeta antibody [EPR22040-80] (ab239081)

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

Immunohistochemical analysis of paraffin-embedded rat cerebellum tissue labeling DGKZ/DGK-zeta with ab239081 at 1/4000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) Ready to use. Cytoplasmic and nuclear staining on Purkinje cells of rat 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.

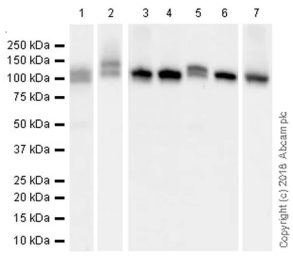


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-DGKZ/DGK-zeta antibody [EPR22040-80] (ab239081)

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

Immunohistochemical analysis of paraffin-embedded mouse cerebellum tissue labeling DGKZ/DGK-zeta with ab239081 at 1/4000 dilution, followed by Goat Anti-Rabbit IgG H&L (HRP) Ready to use. Cytoplasmic and nuclear staining on Purkinje cells of mouse 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.



Western blot - Anti-DGKZ/DGK-zeta antibody [EPR22040-80] (ab239081)

Exposure time: Lane 1: 3 seconds; Lanes 2 & 7: 10 seconds; Lanes 3-6: 37 seconds.
Blocking/Dilution buffer: 5% NFDM/TBST.

The lysates were no-boiled to avoid the protein aggregation.

Multiple bands observed 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 [EPR22040-80] (ab239081) 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 cell line) whole cell lysate at 20 µg

Lane 3:
Mouse brain lysate at 20 µg

Lane 4:
Mouse cerebellum lysate at 20 µg

Lane 5:
Mouse thymus lysate at 20 µg

Lane 6:
Rat brain lysate at 20 µg

Lane 7:
Rat cerebellum 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'.