abcam

ab203565

Anti-PKC theta/PRKCQ (phospho T538) antibody [F4H4L1]

Recombinant

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	Preservative: 0.09% Sodium azide Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	Synthetic Peptide within Human PRKCQ pT538 aa 500 to C-terminus. The exact immunogen used to generate this antibody is proprietary information. Database link Q04759
Clone number	F4H4L1
Purification technique	Affinity purification Protein A
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

Flow Cyt

Tested

Species	Human
Dilution info	8-12 µg/mL

Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	2-4 µg/mL
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

IHC-P

Tested

Species	Human
Dilution info	4-6 µg/mL
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information PRKCQ pT538

Function	Calcium-independent, phospholipid- and diacylglycerol (DAG)-dependent serine/threonine-protein kinase that mediates non-redundant functions in T-cell receptor (TCR) signaling, including T-cells activation, proliferation, differentiation and survival, by mediating activation of multiple transcription factors such as NF-kappa-B, JUN, NFATC1 and NFATC2. In TCR-CD3/CD28-co-stimulated T-cells, is required for the activation of NF-kappa-B and JUN, which in turn are essential for IL2 production, and participates in the calcium-dependent NFATC1 and NFATC2 transactivation (PubMed:21964608). Mediates the activation of the canonical NF-kappa-B pathway (NFKB1) by direct phosphorylation of CARD11 on several serine residues, inducing CARD11 association with lipid rafts and recruitment of the BCL10-MALT1 complex, which then activates IKK complex, resulting in nuclear translocation and activation of NFKB1. May also play an indirect role in activation of the non-canonical NF-kappa-B (NFKB2) pathway. In the signaling pathway leading to JUN activation, acts by phosphorylating the mediator STK39/SPAK and may not act through MAP kinases signaling. Plays a critical role in TCR/CD28-induced NFATC1 and NFATC2 transactivation by participating in the regulation of reduced inositol 1,4,5-trisphosphate generation and intracellular calcium mobilization. After costimulation of T-cells through CD28 can phosphorylate CBLB and is required for the ubiquitination and subsequent degradation of CBLB, which is a prerequisite for the activation of TCR. During T-cells differentiation, plays an important role in the development of T-helper 2 (Th2) cells following immune and inflammatory responses, and, in the development of inflammatory autoimmune diseases, is necessary for the activation of IL17-producing Th17 cells. May play a minor role in Th1 response. Upon TCR stimulation, mediates T-cell protective survival signal by phosphorylating BAD, thus protecting T-cells from BAD-induced apoptosis, and by up-regulating BCL-X(L)/BCL2L1 levels through NF-kappa-B and JUN pathways. In platelets, regulates signal transduction downstream of the ITGA2B, CD36/GP4, F2R/PAR1 and F2RL3/PAR4 receptors, playing a positive role in 'outside-in' signaling and granule secretion signal transduction. May relay signals from the activated ITGA2B receptor by regulating the uncoupling of WASP and WIPF1, thereby permitting the regulation of actin filament nucleation and branching activity of the Arp2/3 complex. May mediate inhibitory effects of free fatty acids on insulin signaling by phosphorylating IRS1, which in turn blocks IRS1 tyrosine phosphorylation and downstream activation of the PI3K/AKT pathway. Phosphorylates MSN (moesin) in the presence of phosphatidylglycerol or phosphatidylinositol. Phosphorylates PDPK1 at 'Ser-504' and 'Ser-532' and negatively regulates its ability to phosphorylate PKB/AKT1. Phosphorylates CCDC88A/GIV and inhibits its guanine nucleotide exchange factor activity (PubMed:23509302). Phosphorylates and activates LRRK1, which phosphorylates RAB proteins involved in intracellular trafficking (PubMed:36040231).

Storage

Shipped at conditions	Blue Ice
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

Supplementary info

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

Activity summary	PKC theta also known as PRKCQ is a protein kinase involved in signal transduction. The mass of PKC theta is approximately 85 kDa. It is a member of the protein kinase C (PKC) family which has distinctive roles in cellular processes. PKC theta specifically localizes in T-cells and is an important player in immune system functions. It is expressed predominantly in lymphoid tissues such as the spleen and thymus where T-cell activation and differentiation are significant.
Biological function summary	PKC theta participates in T-cell receptor signaling involved in the formation of immune synapses. It is an essential component of the multiprotein complex that includes molecules like LAT SLP-76 and Lck. PKC theta's activation allows the transmission of activation signals leading to the production of cytokines like IL-2. This function is integral to ensuring an effective immune response and the maintenance of immune homeostasis.
Pathways	PKC theta is central in the NF-kB pathway which transmits signals from T-cell receptors to the nucleus promoting gene transcription. It also plays a role in the AP-1 pathway collaborating with proteins such as CARMA1 and BCL10. These pathways underpin the immune response coordinating T-cell activation proliferation and survival linking PKC theta function to several immunological processes.
Associated diseases and disorders	PKC theta has connections with autoimmune conditions such as rheumatoid arthritis and type 1 diabetes. In these disorders its role in T-cell signaling becomes dysregulated. This can lead to the overactive immune response against the body's tissues. Additionally PKC theta may interact with proteins involved in inflammatory signaling like NF-kB exacerbating inflammation and tissue damage. Understanding these relationships is important for developing therapies targeting immune dysregulation.

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

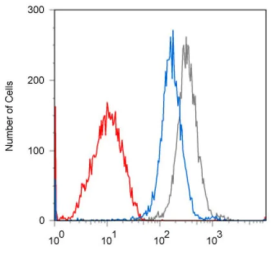
We do not recommend this combination. It is not covered by our product promise.

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.

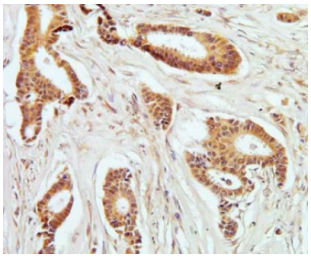
3 product images



Flow Cytometry - Anti-PKC theta/PRKCQ (phospho T538) antibody [F4H4L1] (ab203565)

PKC theta/PRKCQ (phospho T538) Flow Cytometry staining using rabbit Anti-PKC theta/PRKCQ (phospho T538) antibody

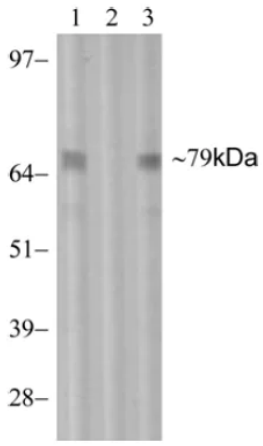
Flow cytometric analysis of Jurkat cells (incubated with 100 µM PMA for 1 hour prior to being fixed and permeabilized) labeling PKC theta/PRKCQ (phospho T538 with ab203565 at 0.1 µg followed by Alexa Fluor® 488 goat anti-rabbit IgG (grey). Pre-incubation with the immunogenic phosphopeptide decreased the signal (red), whereas incubation with the non-phosphopeptide did not (blue).



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-PKC theta/PRKCQ (phospho T538) antibody [F4H4L1] (ab203565)

PKC theta/PRKCQ (phospho T538) Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-PKC theta/PRKCQ (phospho T538) antibody

Immunohistochemical analysis of formalin-fixed, paraffin-embedded Human breast carcinoma tissue labeling PKC theta/PRKCQ (phospho T538) with ab203565 at 5 µg/mL followed by DAB staining. Magnification: 20x.



Western blot - Anti-PKC theta/PRKCQ (phospho T538) antibody [F4H4L1] (ab203565)

All lanes:
Western blot - Anti-PKC theta/PRKCQ (phospho T538) antibody [F4H4L1] (ab203565) at 3 µg/mL

Lane 1:
Jurkat lysates stimulated with 100 ng/mL PMA for 1 hour

Lane 2:
Jurkat lysates stimulated with 100 ng/mL PMA for 1 hour with Immunogen phosphopeptide

Lane 3:
Jurkat lysates stimulated with 100 ng/mL PMA for 1 hour with Non-phosphopeptide

Predicted band size: 41 kDa, 42 kDa, 80 kDa, 82 kDa, 84 kDa

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