

Product datasheet

Anti-cAMP Protein Kinase Catalytic subunit antibody [EP2102Y] α b76238

Recombinant RabMAb

17 References 12 Images

Overview

Product name	Anti-cAMP Protein Kinase Catalytic subunit antibody [EP2102Y]
Description	Rabbit monoclonal [EP2102Y] to cAMP Protein Kinase Catalytic subunit
Host species	Rabbit
Specificity	The immunogen used for this product shares 92% homology with PKA C-beta and PKA C-gamma. Cross-reactivity with these proteins have not been confirmed experimentally.
Tested applications	Suitable for: ICC/IF, WB, IP, IHC-P, Flow Cyt (Intra)
Species reactivity	Reacts with: Mouse, Rat, Human
Immunogen	Synthetic peptide. This information is proprietary to Abcam and/or its suppliers.
Positive control	ICC/IF: HeLa cells Flow Cyt (intra): MCF-7 and HeLa cells IHC-P: Rat stomach tissue, Mouse cerebrum tissue, Human testis and thyroid carcinoma Tissue WB: MCF-7, HeLa, NIH/3T3 and C6 cell lysates
General notes	<p>This product is a recombinant monoclonal antibody, which offers several advantages including:</p> <ul style="list-style-type: none"> - High batch-to-batch consistency and reproducibility - Improved sensitivity and specificity - Long-term security of supply - Animal-free production <p>For more information see here.</p> <p>Our RabMAb[®] technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb[®] patents.</p> <p>We are constantly working hard to ensure we provide our customers with best in class antibodies. As a result of this work we are pleased to now offer this antibody in purified format. We are in the process of updating our datasheets. The purified format is designated 'PUR' on our product labels. If you have any questions regarding this update, please contact our Scientific Support team.</p>

Properties

Form	Liquid
Storage instructions	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C long

term. Avoid freeze / thaw cycle.

Storage buffer

pH: 7.20
Preservative: 0.01% Sodium azide
Constituents: 59% PBS, 40% Glycerol (glycerin, glycerine), 0.05% BSA

Purity

Protein A purified

Clonality

Monoclonal

Clone number

EP2102Y

Isotype

IgG

Applications

The Abpromise guarantee

Our [Abpromise guarantee](#) covers the use of ab76238 in the following tested applications.

The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
ICC/IF		1/100 - 1/250.
WB		1/20000 - 1/200000. Detects a band of approximately 42 kDa (predicted molecular weight: 46 kDa).
IP		1/40 - 1/50.
IHC-P		1/750. Perform heat mediated antigen retrieval with Tris/EDTA buffer pH 9.0 before commencing with IHC staining protocol. See IHC antigen retrieval protocols . For unpurified use at 1/100 - 1/250. Use of HRP-conjugated or polymerized HRP secondary antibodies recommended, stronger signals have been found
Flow Cyt (Intra)		1/60 - 1/80. ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Target

Function

Phosphorylates a large number of substrates in the cytoplasm and the nucleus. Regulates the abundance of compartmentalized pools of its regulatory subunits through phosphorylation of PJA2 which binds and ubiquitinates these subunits, leading to their subsequent proteolysis. Phosphorylates CDC25B, ABL1, NFKB1, CLDN3, PSMC5/RPT6, PJA2, RYR2, RORA and VASP. RORA is activated by phosphorylation. Required for glucose-mediated adipogenic differentiation increase and osteogenic differentiation inhibition from osteoblasts. Involved in the regulation of platelets in response to thrombin and collagen; maintains circulating platelets in a resting state by phosphorylating proteins in numerous platelet inhibitory pathways when in complex with NF-kappa-B (NFKB1 and NFKB2) and I-kappa-B-alpha (NFKBIA), but thrombin and collagen disrupt these complexes and free active PRKACA stimulates platelets and leads to platelet aggregation by phosphorylating VASP. Prevents the antiproliferative and anti-invasive effects of alpha-difluoromethylornithine in breast cancer cells when activated. RYR2 channel

activity is potentiated by phosphorylation in presence of luminal Ca(2+), leading to reduced amplitude and increased frequency of store overload-induced Ca(2+) release (SOICR) characterized by an increased rate of Ca(2+) release and propagation velocity of spontaneous Ca(2+) waves, despite reduced wave amplitude and resting cytosolic Ca(2+). PSMC5/RPT6 activation by phosphorylation stimulates proteasome. Negatively regulates tight junctions (TJs) in ovarian cancer cells via CLDN3 phosphorylation. NFKB1 phosphorylation promotes NF-kappa-B p50-p50 DNA binding. Involved in embryonic development by down-regulating the Hedgehog (Hh) signaling pathway that determines embryo pattern formation and morphogenesis. Prevents meiosis resumption in prophase-arrested oocytes via CDC25B inactivation by phosphorylation. May also regulate rapid eye movement (REM) sleep in the pedunculo-pontine tegmental (PPT). Phosphorylates APOBEC3G and AICDA. Isoform 2 phosphorylates and activates ABL1 in sperm flagellum to promote spermatozoa capacitation.

Tissue specificity

Isoform 1 is ubiquitous. Isoform 2 is sperm-specific and is enriched in pachytene spermatocytes but is not detected in round spermatids.

Sequence similarities

Belongs to the protein kinase superfamily. AGC Ser/Thr protein kinase family. cAMP subfamily. Contains 1 AGC-kinase C-terminal domain. Contains 1 protein kinase domain.

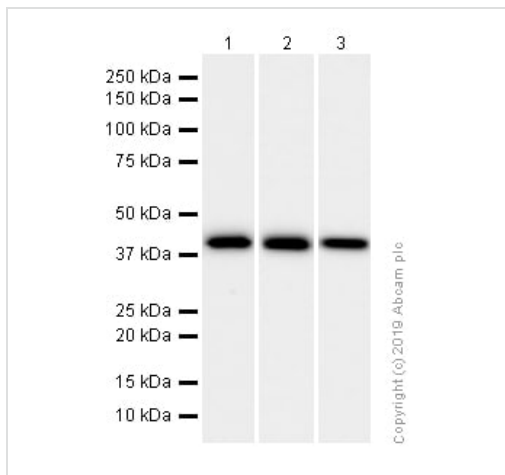
Post-translational modifications

Asn-3 is partially deaminated to Asp giving rise to 2 major isoelectric variants, called CB and CA respectively. Autophosphorylated. Phosphorylation is enhanced by vitamin K(2). Phosphorylated on threonine and serine residues. Phosphorylation on Thr-198 is required for full activity. Phosphorylated at Tyr-331 by activated receptor tyrosine kinases EGFR and PDGFR; this increases catalytic efficiency.

Cellular localization

Cytoplasm. Cell membrane. Nucleus. Mitochondrion. Translocates into the nucleus (monomeric catalytic subunit). The inactive holoenzyme is found in the cytoplasm. Distributed throughout the cytoplasm in meiotically incompetent oocytes. Associated to mitochondrion as meiotic competence is acquired. Aggregates around the germinal vesicles (GV) at the immature GV stage oocytes and Cell projection, cilium, flagellum. Expressed in the midpiece region of the sperm flagellum.

Images



Western blot - Anti-cAMP Protein Kinase Catalytic subunit antibody [EP2102Y] (ab76238)

All lanes : Anti-cAMP Protein Kinase Catalytic subunit antibody [EP2102Y] (ab76238) at 1/20000 dilution (Purified)

Lane 1 : MCF7 (Human breast adenocarcinoma epithelial cell) whole cell lysates

Lane 2 : NIH/3T3 (Mouse embryonic fibroblast) whole cell lysates

Lane 3 : C6 (Rat glial tumor glial cell) whole cell lysates

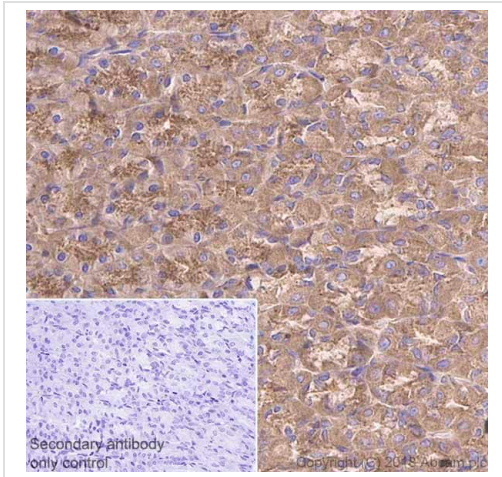
Lysates/proteins at 15 µg per lane.

Secondary

All lanes : Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

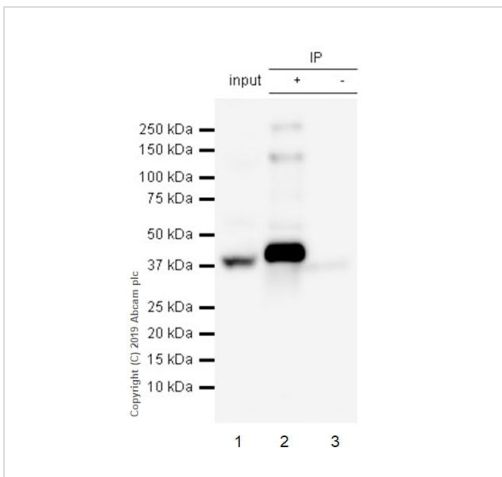
Predicted band size: 46 kDa

Observed band size: 42 kDa



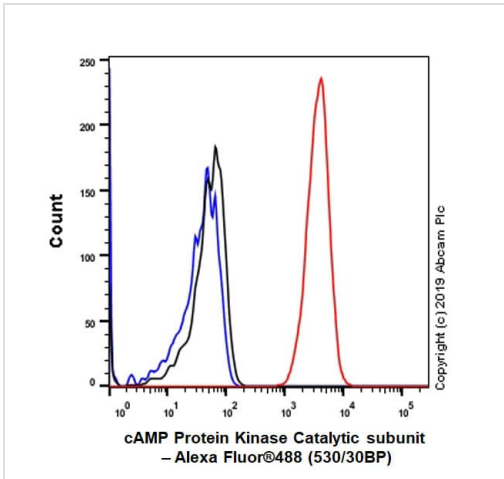
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of rat stomach tissue sections labeling cAMP Protein Kinase Catalytic subunit with purified ab76238 at 1/750 dilution. Heat mediated antigen retrieval was performed using ab93684 (Tris/EDTA buffer, pH 9.0). ImmunoHistoProbe one step HRP Polymer (ready to use) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-cAMP Protein Kinase Catalytic subunit antibody [EP2102Y] (ab76238)



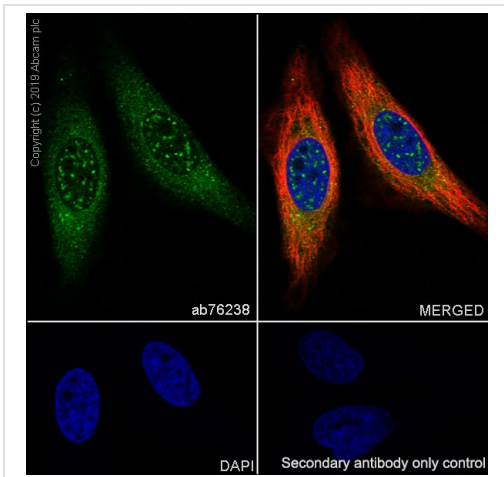
ab76238 (purified) at 1/40 dilution (2 µg) immunoprecipitating cAMP Protein Kinase Catalytic subunit in MCF-7 whole cell lysate. Lane 1 (input): MCF-7 (Human breast adenocarcinoma epithelial cell) whole cell lysate 10 µg
Lane 2 (+): ab76238 & MCF-7 whole cell lysate
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab76238 in MCF-7 whole cell lysate
For western blotting, VeriBlot for IP Detection Reagent (HRP) (ab131366) was used at 1/1000 dilution.
Blocking and diluting buffer: 5% NFDM/TBST.

Immunoprecipitation - Anti-cAMP Protein Kinase Catalytic subunit antibody [EP2102Y] (ab76238)



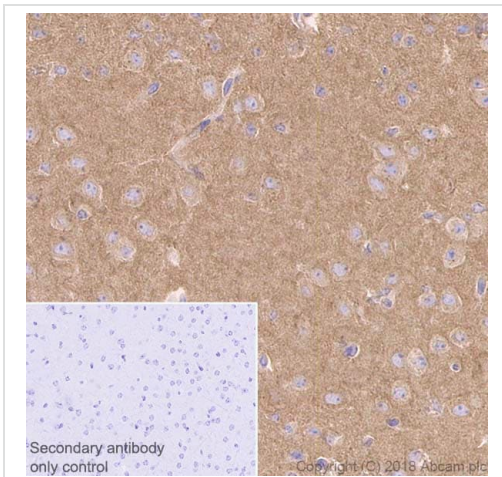
Flow Cytometry (Intracellular) - Anti-cAMP Protein Kinase Catalytic subunit antibody [EP2102Y] (ab76238)

Intracellular Flow Cytometry analysis of MCF-7 (Human breast adenocarcinoma epithelial cell) cells labeling cAMP Protein Kinase Catalytic subunit with purified ab76238 at 1/80 dilution (10 µg/ml) (Red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) secondary antibody was used at 1/2000. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).



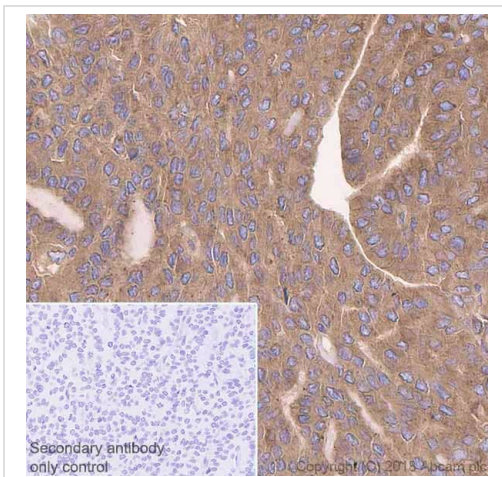
Immunocytochemistry/ Immunofluorescence - Anti-cAMP Protein Kinase Catalytic subunit antibody [EP2102Y] (ab76238)

Immunocytochemistry/ Immunofluorescence analysis of HeLa (Human cervix adenocarcinoma epithelial cell) cells labeling cAMP Protein Kinase Catalytic subunit with purified ab76238 at 1:100 dilution (8.0 µg/ml). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% tritonX-100. Cells were counterstained with Ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1:200 (2.5 µg/ml). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1:1000 (2 µg/ml) dilution. DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



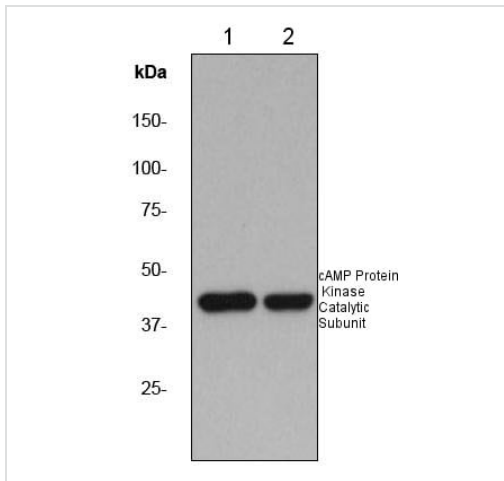
Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of mouse cerebrum tissue sections labeling cAMP Protein Kinase Catalytic subunit with purified ab76238 at 1/750 dilution. Heat mediated antigen retrieval was performed using [ab93684](#) (Tris/EDTA buffer, pH 9.0). ImmunoHistoProbe one step HRP Polymer (ready to use) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-cAMP Protein Kinase Catalytic subunit antibody [EP2102Y] (ab76238)



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) analysis of human thyroid carcinoma tissue sections labeling cAMP Protein Kinase Catalytic subunit with purified ab76238 at 1/750 dilution. Heat mediated antigen retrieval was performed using [ab93684](#) (Tris/EDTA buffer, pH 9.0). ImmunoHistoProbe one step HRP Polymer (ready to use) was used as the secondary antibody. Negative control: PBS instead of the primary antibody. Hematoxylin was used as a counterstain.

Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-cAMP Protein Kinase Catalytic subunit antibody [EP2102Y] (ab76238)



Western blot - Anti-cAMP Protein Kinase Catalytic subunit antibody [EP2102Y] (ab76238)

All lanes : Anti-cAMP Protein Kinase Catalytic subunit antibody [EP2102Y] (ab76238) at 1/200000 dilution (unpurified)

Lane 1 : HeLa cell lysate

Lane 2 : MCF-7 cell lysate

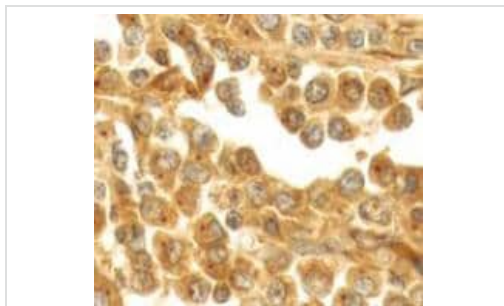
Lysates/proteins at 10 µg per lane.

Secondary

All lanes : goat anti-rabbit HRP at 1/1000 dilution

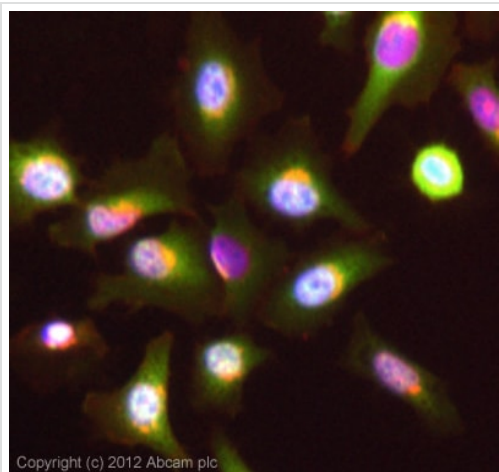
Predicted band size: 46 kDa

Observed band size: 42 kDa



Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-cAMP Protein Kinase Catalytic subunit antibody [EP2102Y] (ab76238)

ab76238 (unpurified), at a 1/100 dilution, staining human cAMP Protein Kinase Catalytic Subunit in testis by Immunohistochemistry, Formalin/PFA-fixed paraffin-embedded tissue. Heat mediated antigen retrieval was performed before commencing with IHC staining protocol.



Immunocytochemistry/ Immunofluorescence - Anti-cAMP Protein Kinase Catalytic subunit antibody [EP2102Y] (ab76238)

Flow Cytometry (Intracellular) - Anti-cAMP Protein Kinase Catalytic subunit antibody [EP2102Y] (ab76238)

ICC/IF image of ab76238 (unpurified) stained HeLa cells. The cells were 4% formaldehyde (10 min) and then incubated in 1%BSA / 10% normal goat serum / 0.3M glycine in 0.1% PBS-Tween for 1h to permeabilise the cells and block non-specific protein-protein interactions. The cells were then incubated with the antibody (ab76238, neat) overnight at +4°C. The secondary antibody (green) was [ab96899](#) DyLight 488 goat anti-rabbit IgG (H+L) used at a 1/250 dilution for 1h. Alexa Fluor® 594 WGA was used to label plasma membranes (red) at a 1/200 dilution for 1h. DAPI was used to stain the cell nuclei (blue) at a concentration of 1.43µM.

Overlay histogram showing HeLa cells stained with ab76238 (unpurified) (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Tween for 20 min. The cells were then incubated in 1x PBS / 10% normal goat serum / 0.3M glycine to block non-specific protein-protein interactions followed by the antibody (ab76238, 1/100 dilution) for 30 min at 22°C. The secondary antibody used was DyLight® 488 goat anti-rabbit IgG (H+L) ([ab96899](#)) at 1/500 dilution for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG (monoclonal) (1µg/1x10⁶ cells) used under the same conditions. Unlabelled sample (blue line). Acquisition of >5,000 events were collected using a 20mW Argon ion laser (488nm) and 525/30 bandpass filter. This antibody gave a positive signal in HeLa cells fixed with 4% paraformaldehyde (10 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions.

Why choose a recombinant antibody?



Research with confidence
Consistent and reproducible results



Long-term and scalable supply
Recombinant technology



Success from the first experiment
Confirmed specificity



Ethical standards compliant
Animal-free production

Anti-cAMP Protein Kinase Catalytic subunit antibody [EP2102Y] (ab76238)

Please note: All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

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