abcam

ab68266

Anti-Cdk4 antibody [EPR2513Y]

Recombinant | RabMAb | KO Validated | 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	EPR2513Y
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

IP

Tested

Species	Human
Dilution info	1/30
Notes	-

Expected

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

WB

Tested

Species	Mouse
Dilution info	1/500 - 1/1000
Notes	-

Species	Rat
Dilution info	1/500 - 1/1000
Notes	-

Species	Human
Dilution info	1/500 - 1/1000
Notes	-

IHC-P

Not recommended

Species	Mouse, Rat, Human
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	1/100
Notes	-

Expected

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

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	1/500
Notes	ab172730 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody.

Expected

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

Target data

See full target information CDK4

Function Ser/Thr-kinase component of cyclin D-CDK4 (DC) complexes that phosphorylate and inhibit members of the retinoblastoma (RB) protein family including RB1 and regulate the cell-cycle during G(1)/S transition. Phosphorylation of RB1 allows dissociation of the transcription factor E2F from the RB/E2F complexes and the subsequent transcription of E2F target genes which are responsible for the progression through the G(1) phase. Hypophosphorylates RB1 in early G(1) phase. Cyclin D-CDK4 complexes are major integrators of various mitogenenic and antimitogenic signals. Also phosphorylates SMAD3 in a cell-cycle-dependent manner and represses its transcriptional activity. Component of the ternary complex, cyclin D/CDK4/CDKN1B, required for nuclear translocation and activity of the cyclin D-CDK4 complex.

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	Cdk4 also known as Cyclin-dependent kinase 4 is a serine/threonine kinase involved in cell cycle regulation. Cdk4 has a molecular weight of approximately 34 kDa. This protein mainly locates in the nucleus of the cell and its expression occurs in diverse tissues. Cdk4 partners with D-type cyclins to exert its function which is essential for the transition from the G1 phase to the S phase of the cell cycle. Researchers often study Cdk4 using techniques like immunohistochemistry (IHC) to determine its expression and localization in different tissues.
Biological function summary	Cdk4 plays a fundamental role in cell cycle regulation by forming a complex with D-type cyclins. Together they phosphorylate the retinoblastoma protein (Rb) resulting in the release of E2F transcription factors which promote the expression of genes necessary for DNA replication. The Cdk4/cyclin D complex regulates the cell's commitment to enter S phase and continue cell division. This regulation is key for normal cell proliferation and tissue homeostasis. Cdk4 activity is strictly controlled by INK4 family members acting as inhibitors and adding an extra regulation layer.

Pathways	Cdk4 is an integral part of important signaling pathways like the cell cycle and PI3K/AKT pathways. In the cell cycle pathway Cdk4 relays signals downstream that drive the transition from the G1 to S phase through its interaction with cyclin D and Rb. In the PI3K/AKT pathway signaling can influence cyclin D expression indirectly affecting Cdk4 activity. Proteins such as Cdk6 closely relate to Cdk4 and often compensate or partner with Cdk4 in these pathways to maintain proper cell cycle progression.
Associated diseases and disorders	Abnormalities in Cdk4 function or regulation relate to cancer and certain metabolic syndromes. Hyperactivity of Cdk4 due to overexpression or mutation frequently occurs in several cancers including melanoma and breast cancer. In these malignancies Cdk4 aberrantly drives excessive cell proliferation. Mutations or alterations in proteins such as p16 an inhibitor of Cdk4 are often found in these cancers highlighting the critical role of Cdk4 in disease progression. Understanding the role of Cdk4 allows researchers to develop targeted therapies such as Cdk4/6 inhibitors offering new treatment options.

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

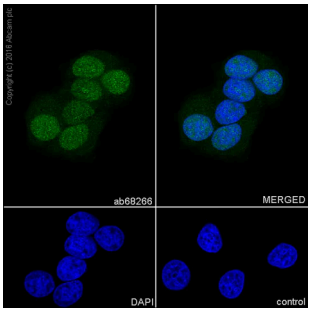
We do not recommend this combination. It is not covered by our product promise.

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.

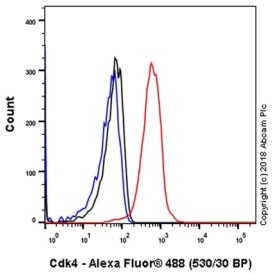
5 product images



Immunocytochemistry/ Immunofluorescence - Anti-Cdk4 antibody [EPR2513Y] (ab68266)

Cdk4 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Cdk4 antibody

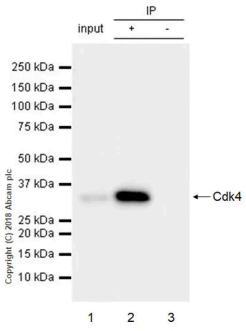
Immunocytochemistry/ Immunofluorescence analysis of MCF7 (Human breast adenocarcinoma epithelial cell) cells labeling Cdk4 with ab68266 at 1:100 (5.4 µg/ml). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% triton X-100. Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1:1000 (2 µg/ml) dilution. DAPI nuclear counterstain.
PBS instead of the primary antibody was used as the secondary antibody only control.



Flow Cytometry (Intracellular) - Anti-Cdk4 antibody [EPR2513Y] (ab68266)

Cdk4 Flow Cytometry (Intracellular) staining using rabbit Anti-Cdk4 antibody

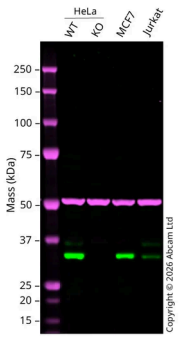
Intracellular Flow Cytometry analysis of A549 (Human lung carcinoma epithelial cell) cells labeling Cdk4 with ab68266 at 1/50 dilution (1µg/ml) (red). Cells were fixed with 4% Paraformaldehyde. A Goat anti rabbit IgG (Alexa Fluor® 488) secondary antibody was used at 1/2000 dilution. Isotype control - Rabbit monoclonal IgG (Black). Unlabeled control - Cell without incubation with primary antibody and secondary antibody (Blue).



Immunoprecipitation - Anti-Cdk4 antibody [EPR2513Y] (ab68266)

ab68266 at 1:30 dilution (2 µg) immunoprecipitating Cdk4 in K562 (Human chronic myelogenous leukemia lymphoblast) whole cell lysate.
Lane 1 (input): K562 whole cell lysate 10 µg
Lane 2 (+): ab68266 & K562 whole cell lysate
Lane 3 (-): Rabbit monoclonal IgG (ab172730) instead of ab68266 in K562 whole cell lysate
For western blotting, VeriBlot for IP Detection Reagent (HRP) (ab131366) was used for detection at 1:1000 dilution.
Blocking and diluting buffer: 5% NFDM/TBST.
All lanes:
Immunoprecipitation - Anti-Cdk4 antibody [EPR2513Y] (ab68266)

Predicted band size: 34 kDa



Western blot - Anti-Cdk4 antibody [EPR2513Y] (ab68266)

Cdk4 Western blot staining using rabbit Anti-Cdk4 antibody

Western blot: Anti-Cdk4 antibody [EPR2513Y] ab68266 staining at 1/2000 dilution, shown in green; Mouse anti alpha Tubulin ab7291 loading control staining at 1/20000 dilution, shown in magenta. A band was observed at 34 kDa in Wild-type HeLa cell lysates with no signal observed at this size in CDK4 knockout HeLa cell line. To generate this image, samples were run on an SDS-PAGE gel then transferred onto a nitrocellulose membrane. Membranes were blocked in 5% Milk in TBS-0.1 % Tween® 20 (TBS-T) before incubation with primary antibodies overnight at 4 °C. Blots were washed four times in TBS-T, incubated with secondary antibodies for 1 h at room temperature, washed again four times then imaged. Secondary antibodies used were Goat anti-Rabbit 800CW and Goat anti-Mouse 680RD at 1/20,000 dilution.
All lanes:

Western blot - Anti-Cdk4 antibody [EPR2513Y] (ab68266) at 1/2000 dilution

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

Lane 2:
Western blot - Human CDK4 knockout HeLa cell line (ab255378) at 20 µg

Lane 3:
MCF7 cell lysates at 20 µg

Lane 4:
Jurkat cell lysates at 20 µg

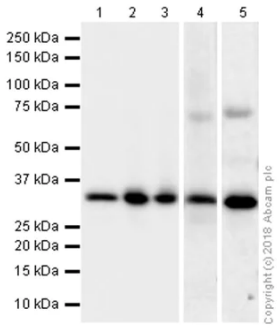
Secondary

All lanes:
Goat anti-Rabbit 800CW & Goat anti-Mouse 680RD at 1/20000 dilution

Performed under reducing conditions.

Predicted band size: 34 kDa

Observed band size: 34 kDa



Western blot - Anti-Cdk4 antibody [EPR2513Y] (ab68266)

Cdk4 Western blot staining using rabbit Anti-Cdk4 antibody

Exposure times: Lane 1-3: 30 secs; Lane 4-5: 180 secs.
Blocking/Dilution buffer: 5% NFDM/TBST.

All lanes:
Western blot - Anti-Cdk4 antibody [EPR2513Y] (ab68266) at 1/2000 dilution

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

Lane 2:
K562 (Human chronic myelogenous leukemia lymphoblast) whole cell lysate at 20 µg

Lane 3:
Ramos (Human Burkitt's lymphoma B lymphocyte) whole cell lysate at 20 µg

Lane 4:
Rat lung lysate at 20 µg

Lane 5:
Mouse lung lysate at 20 µg

Secondary

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

Predicted band size: 34 kDa

Observed band size: 34 kDa

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