abcam

ab237265

Alexa Fluor® 647 Anti-p21 antibody [EPR18021]

Anti-p21 antibody [EPR18021] - Alexa Fluor® 647 conjugated (ab237265) is a rabbit recombinant monoclonal antibody detecting p21 in **Flow Cytometry (Intra), ICC/IF**. Suitable for **Mouse**.

- Biophysical QC for unrivalled batch-batch consistency

Recombinant | RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Conjugation	Alexa Fluor® 647
Excitation/Emission	Ex: 650nm, Em: 665nm
Storage buffer	pH: 7.4 Preservative: 0.02% Sodium azide Constituents: PBS, 30% Glycerol (glycerin, glycerine), 1% BSA
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Clone number	EPR18021
Purification technique	Affinity purification Protein A
Specificity	Expression levels of the target protein vary between different tissue/cell lines and in some cases induction may be required before a signal is observed.
Concentration	0.5 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

ICC/IF

Tested

Species	Mouse
Dilution info	1/1000
Notes	This product gave a positive signal in NIH3T3 fixed with 4% formaldehyde (10 min).

Flow Cyt (Intra)

Tested

Species	Mouse
Dilution info	1/2500
Notes	-

IHC-P

Expected

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

Target data

See full target information Cdkn1a

Function May be involved in p53/TP53 mediated inhibition of cellular proliferation in response to DNA damage. Binds to and inhibits cyclin-dependent kinase activity, preventing phosphorylation of critical cyclin-dependent kinase substrates and blocking cell cycle progression. Functions in the nuclear localization and assembly of cyclin D-CDK4 complex and promotes its kinase activity towards RB1. At higher stoichiometric ratios, inhibits the kinase activity of the cyclin D-CDK4 complex (PubMed:25329316). Inhibits DNA synthesis by DNA polymerase delta by competing with POLD3 for PCNA binding (By similarity). Plays an important role in controlling cell cycle progression and DNA damage-induced G2 arrest (By similarity). Plays an important role in controlling cell cycle progression and DNA damage-induced G2 arrest (PubMed:37178686). Involved in p53/TP53 mediated inhibition of cellular proliferation in response to DNA damage. Also involved in p53-independent DNA damage-induced G2 arrest mediated by CREB3L1 in astrocytes and osteoblasts (PubMed:37178686). Binds to and inhibits cyclin-

dependent kinase activity, preventing phosphorylation of critical cyclin-dependent kinase substrates and blocking cell cycle progression. Functions in the nuclear localization and assembly of cyclin D-CDK4 complex and promotes its kinase activity towards RB1. At higher stoichiometric ratios, inhibits the kinase activity of the cyclin D-CDK4 complex (PubMed:25329316). Inhibits DNA synthesis by DNA polymerase delta by competing with POLD3 for PCNA binding (By similarity). Negatively regulates the CDK4- and CDK6-driven phosphorylation of RB1 in keratinocytes, thereby resulting in the release of E2F1 and subsequent transcription of E2F1-driven G1/S phase promoting genes (PubMed:36689330).

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, Stable for 12 months at -20°C, Store in the dark

Notes

What is this antibody validated in?
Alexa Fluor® 647 Anti-p21 antibody [EPR18021] (ab237265) is a rabbit recombinant monoclonal antibody and is validated for use in Flow Cytometry (Intra), Flow Cytometry (Flow Cyt), Immunocytochemistry/immunofluorescence (ICC/IF) in Mouse samples.

Related products
Antibody clone EPR18021 is also available pre-conjugated to a variety of labels for your convenience – Anti-p21 Alexa Fluor® 647 [EPR18021] (ab237265).

Other related products
We have a range of other formats of antibody clone [EPR18021] also available for your convenience: ab188224, Carrier free - ab232512, Alexa Fluor® 488 - ab237264, Alexa Fluor® 647 - ab237265, Carrier free - ab242468, APC - ab313956, PE - ab314287

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.

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Supplementary info

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

Activity summary	The p21 protein also known as CDKN1A is an important regulator of cell cycle progression. It acts as a cyclin-dependent kinase inhibitor where it binds to and inhibits the activity of cyclin-CDK2 or -CDK4 complexes. The molecular weight of p21 is approximately 21 kDa. Cellular expression of p21 is diverse; it occurs in various tissues reflecting its broad role in maintaining cell cycle control. This protein's expression level is often assessed using techniques such as p21 western blotting p21 ELISA and p21 IHC staining.
Biological function summary	P21 plays a critical role in cell cycle regulation and DNA damage response. It associates with the p53 tumor suppressor protein forming an essential part of the p53 signaling pathway under stress conditions. p21 arrests cells in G1 phase allowing DNA repair or leading to cellular senescence. Through these mechanisms p21 integrates signals from stress and damage emphasizing its importance as a mediator in cellular checkpoint control.
Pathways	P21 is closely involved in the p53 and the Transforming Growth Factor-beta (TGF-B) signaling pathways. This integration helps in transmitting growth-inhibitory signals. p21 interacts with proteins such as p53 and cyclins ensuring precise regulation of the cell cycle and growth arrest when necessary. Triggered by p53 activation p21 contributes to preventing undisturbed cell proliferation acting as a safeguard against tumor formation.
Associated diseases and disorders	P21's deregulation associates with cancer and age-related diseases. Its impairment is a common feature in many cancers often linked with defects in the p53 pathway. Reduced p21 expression can contribute to unchecked cell division and tumor progression. Moreover in age-related diseases p21's role in promoting cellular senescence connects it with degenerative conditions. The intricate relationship

between p21 and proteins such as p53 and cyclins highlights its potential as a therapeutic target for these disorders.

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

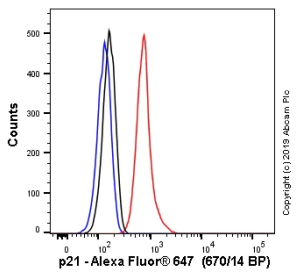
We do not recommend this combination. It is not covered by our product promise.

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.

2 product images

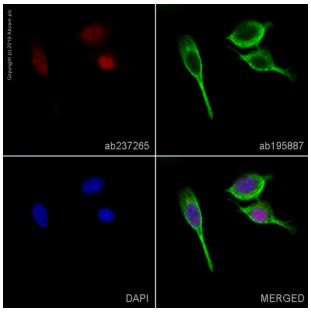


Flow Cytometry (Intracellular) - Alexa Fluor® 647 Anti-p21 antibody [EPR18021] (ab237265)

P21 Flow Cytometry (Intracellular) staining using rabbit Anti-p21 antibody

Overlay histogram showing NIH/3T3 cells stained with ab237265 (red line). The cells were fixed with 80% methanol (5 min) and then permeabilized with 0.1% PBS-Triton X-100 for 15 min. The cells were then incubated in 1x PBS/10% normal Goat serum to block non-specific protein-protein interactions followed by the antibody (ab237265) ($1x10^6$ in 100 µl at 0.2 µg/ml (1/2500 dilution)) for 30 min at 22°C.
Isotype control antibody (black line) was Rabbit IgG (monoclonal) Alexa Fluor® 647 (ab199093) used at the same concentration and conditions as the primary antibody. Unlabeled sample (blue line) was also used as a control. Acquisition of >5,000 events were collected using a 40 mW Red laser (640nm) and 670/14 bandpass filter.

This antibody gave a positive signal in NIH/3T3 cells fixed with 4% formaldehyde (10 min)/permeabilized with 0.1% PBS-Triton X-100 for 15 min used under the same conditions.



Immunocytochemistry/ Immunofluorescence - Alexa Fluor® 647 Anti-p21 antibody [EPR18021] (ab237265)

P21 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-p21 antibody

ab237265 staining p21 in NIH/3T3 cells. The cells were fixed with 4% formaldehyde (10 min), permeabilized with 0.1% Triton X-100 for 5 minutes and then blocked with 1% BSA/10% normal goat serum/0.3M glycine in 0.1% PBS-Tween for 1h. The cells were then incubated overnight at +4°C with ab237265 at 1/1000 dilution (shown in red) and ab195887, Mouse monoclonal to alpha Tubulin (Alexa Fluor® 488), at 1/250 dilution (shown in green). Nuclear DNA was labeled with DAPI (shown in blue).
Image was taken with a confocal microscope (Leica-Microsystems, TCS SP8).

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