abcam

ab58578

Anti-ARF1 antibody

KO Validated

Key facts

Isotype	IgG
Host species	Goat
Storage buffer	pH: 7.3 Preservative: 0.02% Sodium azide Constituents: Tris buffered saline, 0.5% BSA
Form	Liquid
Clonality	Polyclonal
Immunogen	Synthetic Peptide within Human ARF1 aa 150 to C-terminus. The exact immunogen used to generate this antibody is proprietary information. Database link P84077
Purification technique	Affinity purification Immunogen
Concentration	Concentration data is not available right now, please try again later Batch concentration finder →
Purification notes	Purified from goat serum by ammonium sulphate precipitation followed by antigen affinity chromatography using the immunizing peptide.

Reactivity data

ELISA

Expected

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

Predicted

Species	Xenopus laevis, Cynomolgus monkey
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	0.3-1 µg/mL
Notes	1 hour primary incubation is recommended for this product.

Species	Mouse
Dilution info	0.3-1 µg/mL
Notes	-

Species	Dog
Dilution info	0.3-1 µg/mL
Notes	-

Predicted

Species	Xenopus laevis, Cynomolgus monkey, Rat, Cow
Dilution info	-
Notes	-

Flow Cyt

Tested

Species	Human
Dilution info	10 µg/mL
Notes	-

Expected

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

Predicted

Species	Xenopus laevis, Cynomolgus monkey, Rat, Cow
Dilution info	-
Notes	-

Target data

See full target information ARF1

Function	Small GTPase involved in protein trafficking between different compartments (PubMed:8253837). Modulates vesicle budding and uncoating within the Golgi complex (PubMed:8253837). In its GTP-bound form, triggers the recruitment of coatomer proteins to the Golgi membrane (PubMed:8253837). The hydrolysis of ARF1-bound GTP, which is mediated by ARFGAPs proteins, is required for dissociation of coat proteins from Golgi membranes and vesicles (PubMed:8253837). The GTP-bound form interacts with PICK1 to limit PICK1-mediated inhibition of Arp2/3 complex activity; the function is linked to AMPA receptor (AMPAR) trafficking, regulation of synaptic plasticity of excitatory synapses and spine shrinkage during long-term depression (LTD) (By similarity). Plays a key role in the regulation of intestinal stem cells and gut microbiota, and is essential for maintaining intestinal homeostasis (By similarity). Also plays a critical role in mast cell expansion but not in mast cell maturation by facilitating optimal mTORC1 activation (By similarity). (Microbial infection) Functions as an allosteric activator of the cholera toxin catalytic subunit, an ADP-ribosyltransferase.

Storage

Shipped at conditions	Blue Ice
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

This antibody is expected to recognize all four reported isoforms.

Supplementary info

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

Activity summary	ARF1 also known as ADP-ribosylation factor 1 or ARF1 protein is a small GTPase with a molecular mass of approximately 20 kDa. Commonly expressed in a variety of cell types ARF1 plays a central role in vesicle trafficking. As an activator ARF1 interacts with different GTPase-activating proteins such as ARFGAP1 and BIG1 ensuring the proper distribution of proteins and lipids in cells. ARF1's expression occurs across numerous cellular compartments including the Golgi apparatus aiding in the formation of transport vesicles.
Biological function summary	ARF1 is essential in regulating membrane dynamics and vesicular traffic. It forms part of the COPI and clathrin-coated vesicle complexes where it recruits coat proteins to budding vesicles. This recruitment is fundamental for maintaining Golgi structure and function. Additionally ARF1 plays a role in cytokinesis by interacting with the septin cytoskeleton. The protein also influences actin cytoskeleton remodeling which is pivotal for cell shape changes and motility.
Pathways	ARF1 is central to both the endocytic and secretory pathways. It collaborates with proteins like ARFS and 3F1 in modulating the trafficking of cargo between the endoplasmic reticulum and Golgi. Within the secretory pathway ARF1 interacts with SNARE proteins to facilitate vesicle docking and fusion. Its actions in pathways maintain cellular homeostasis and promote proper cellular response to various stimuli.
Associated diseases and disorders	ARF1 has links to cancer and Alzheimer's disease. Overexpression of ARF1 correlates with tumor progression and metastasis impacting cell proliferation and survival mechanisms. Additionally its disruption associates with Alzheimer's where it may influence amyloid precursor protein processing alongside interactions with GAP proteins. Understanding ARF1's role in these conditions highlights its potential as a therapeutic target stressing the importance of studying its interactions with disease-related proteins.

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.

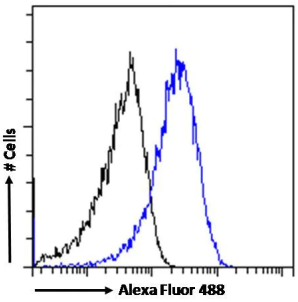
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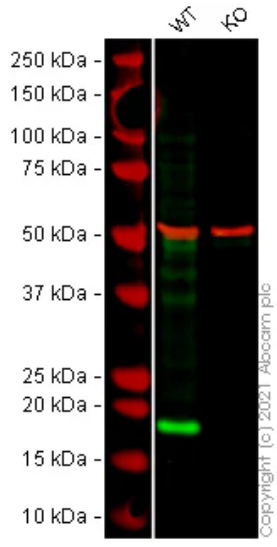
3 product images



Flow Cytometry - Anti-ARF1 antibody (ab58578)

ARF1 Flow Cytometry staining using goat Anti-ARF1 antibody

Flow cytometric analysis of paraformaldehyde fixed A431 cells (blue line), permeabilized with 0.5% Triton. Primary incubation 1hr (10µg/mL) followed by Alexa Fluor 488 secondary antibody (1µg/mL). IgG control: Unimmunized goat IgG (black line) followed by Alexa Fluor 488 secondary antibody.



Western blot - Anti-ARF1 antibody (ab58578)

ARF1 Western blot staining using goat Anti-ARF1 antibody

Lanes 1 - 2: Merged signal (red and green). Green - ab58578 observed at 18 kDa. Red - loading control ab7291 (Mouse anti-Alpha Tubulin [DM1A]) observed at 55 kDa.
ab58578 was shown to react with ARF1 in wild-type HeLa cells in Western blot with loss of signal observed in ARF1 knockout cell line ab264939 (ARF1 knockout cell lysate ab257353). Wild-type HeLa and ARF1 knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 3 % milk in TBS-T (0.1 % Tween®) before incubation with ab58578 and ab7291 (Mouse anti-Alpha Tubulin [DM1A]) overnight at 4 °C at 1 µg/ml and a 1 in 20000 dilution respectively. Blots were incubated with Donkey anti-Goat IgG H&L (IRDye® 800CW) preabsorbed (ab216775) and Donkey anti-Mouse 680RD secondary antibodies at 1 in 20000 dilution for 1 h at room temperature before imaging.

All lanes:
Western blot - Anti-ARF1 antibody (ab58578) at 1 µg/mL

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

Lane 2:
Western blot - Human ARF1 knockout HeLa cell lysate (ab257353) at 20 µg

Performed under reducing conditions.

Predicted band size: 21 kDa

Observed band size: 18 kDa

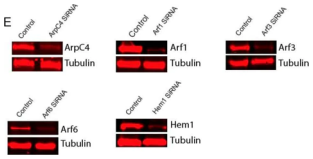


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Western blot - Anti-ARF1 antibody (ab58578)

ARF1 Western blot staining using goat Anti-ARF1 antibody

ARF1 western blot using anti-ARF1 antibody ab58578. Publication image and figure legend from Singh, V., Davidson, A. C., et al., 2020, Int J Mol Sci, PubMed 32252226.

ab58578 was used in this publication in western blot. This may not be the same as the application(s) guaranteed by Abcam. For a full list of applications guaranteed by Abcam for ab58578 please see the product overview.

(A) Microscopy images depicting phagocytosis of labelled E. coli particles by PMA differentiated THP-1 macrophages (control) or upon silencing ArcC4, Arf1, Arf3, Arf1& Arf3, or Arf6 using siRNA. Internalized bacteria are shown in red while actin is stained using phalloidin (green). (B) Quantification of the phagocytosed E. coli by THP-1 macrophages as described in (A). Phagocytosis of phRodo-conjugated E. coli particles in THP-1 macrophages (control) or upon using actin inhibitor (CytoD), Arno inhibitor (SecinH3), or silencing of Arf1 or Arf6 in Arno-inhibited cells. Scale bar 10 μm (D). Represents quantification of the percentage of internalized bacteria under conditions as described for (C). (E) Immunoblot confirming the silencing of the mentioned proteins using SiRNA. Each bar represents the average of results from 3 separate experiments, and error bars represent SD, *** $p < 0.001$; ** $p < 0.01$; * $p < 0.05$; ns, not significant (one-way ANOVA followed by a post hoc Dunnett comparison) relative to the equivalent strain on WT THP-1 control cells. Lines indicate significance between pairs of conditions determined by Student's t test.

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