abcam

ab238923

Anti-alpha 1a Adrenergic Receptor/ADRA1A antibody [EPR9691(B)] - BSA and Azide free

Recombinant RabMAb

Key facts

Isotype	IgG
Host species	Rabbit
Storage buffer	pH: 7.2 - 7.4 Constituents: PBS
Form	Liquid
Clonality	Monoclonal
Immunogen	The exact immunogen used to generate this antibody is proprietary information.
Carrier free	Yes
Clone number	EPR9691(B)
Purification technique	Affinity purification Protein A
Concentration	0.971 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

WB

Expected

Species	Human
Dilution info	Use at an assay dependent concentration.

Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

ICC/IF

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

Flow Cyt (Intra)

Tested

Species	Human
Dilution info	-
Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

Target data

See full target information ADRA1A

Function	Alpha-1 adrenergic receptors are G protein-coupled receptors for catecholamines that signal through the G(q) family of G proteins, including G(q) and G(11). Upon activation, they stimulate the phosphatidylinositol-calcium second messenger pathway, leading to calcium release from intracellular stores and activation of protein kinase C (PubMed:37563160). ADRA1A binds the catecholamine ligands norepinephrine and epinephrine (PubMed:18802028, PubMed:37563160, PubMed:7815325, PubMed:8024574, PubMed:8183249, PubMed:8832064). Can also couple to G(14) protein (By similarity). Nuclear ADRA1A forms heterooligomers with ADRA1B to regulate phenylephrine(PE)-stimulated ERK signaling in cardiac myocytes (PubMed:18802028, PubMed:22120526). At the plasma membrane, ADRA1A interacts with CAVIN4/MURC to regulates ERK activation in cardiomyocytes, contributing to the regulation of cardiac hypertrophy (PubMed:24567387). Additionally, functions as a vasopressor in resistance arteries and plays a role in maintaining normal arterial blood pressure (By similarity).

Storage

Shipped at conditions	Blue Ice
Appropriate short-term storage conditions	+4°C
Appropriate long-term storage conditions	+4°C
Storage information	Do Not Freeze

Notes

ab238923 is the carrier-free version of ab137123.

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.

Conjugation ready

Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide

and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

Compatibility
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

Supplementary info

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

Activity summary	The alpha 1a Adrenergic Receptor also known as ADRA1A or alpha 1a receptor is a type of G protein-coupled receptor with an approximate mass of 56 kDa. It is a part of the adrenergic receptors family which are known for responding to adrenaline and noradrenaline. This receptor is expressed predominantly in smooth muscle tissues such as those in the prostate and blood vessels. Mechanically the A1 adrenergic receptor activates phospholipase C via Gq proteins leading to an increase in intracellular calcium levels.
Biological function summary	Alpha 1a Adrenergic Receptor plays a critical role in regulating smooth muscle contraction and blood vessel vasoconstriction. It forms an important part of the adrenergic receptor system which also includes alpha adrenergic receptors such as alpha 1b and alpha 1d subclasses. The activation of the alpha 1a receptor promotes vasoconstriction which contributes to blood pressure regulation. Additionally it is involved in modulating neurotransmitter release through its presence in nerve cells.
Pathways	Alpha 1a Adrenergic Receptor figures prominently in signaling pathways that manage cardiovascular functions. It is tightly associated with the GPCR signaling pathway which includes other adrenergic receptors and proteins like beta adrenergic receptors. Another significant pathway is the calcium signaling pathway where its impact on intracellular calcium plays a role in muscle contractions linking it to other proteins involved in the contraction machinery.
Associated diseases and disorders	Alpha 1a Adrenergic Receptor connects to conditions such as hypertension and benign prostatic hyperplasia (BPH). The receptor's role in vasoconstriction directly links to hypertension where it affects arterial blood pressure. In BPH the alpha 1a receptor influences prostate smooth muscle tone making it a target in treating urinary symptoms. These conditions involve proteins like angiotensin-converting enzyme in hypertension and other alpha receptors in BPH highlighting the ADRA1A's importance in therapeutic strategies.

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

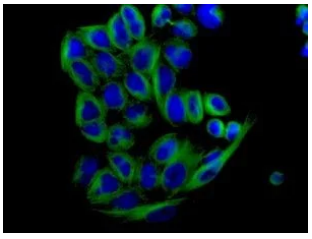
We do not recommend this combination. It is not covered by our product promise.

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.

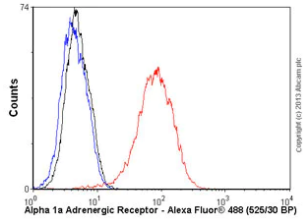
2 product images



Immunocytochemistry/ Immunofluorescence - Anti-alpha 1a Adrenergic Receptor/ADRA1A antibody [EPR9691(B)] - BSA and Azide free (ab238923)

Alpha 1a Adrenergic Receptor/ADRA1A Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-alpha 1a Adrenergic Receptor/ADRA1A antibody

Immunofluorescent analysis of HepG2 (Human liver hepatocellular carcinoma cell line) cells labelling alpha 1a Adrenergic Receptor/ADRA1A with ab137123 at 1/250 dilution.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab137123).



Flow Cytometry (Intracellular) - Anti-alpha 1a Adrenergic Receptor/ADRA1A antibody [EPR9691(B)] - BSA and Azide free (ab238923)

Alpha 1a Adrenergic Receptor/ADRA1A Flow Cytometry (Intracellular) staining using rabbit Anti-alpha 1a Adrenergic Receptor/ADRA1A antibody

Overlay histogram showing HepG2 cells stained with ab137123 (red line). The cells were fixed with 4% paraformaldehyde (10 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 (ab137123, 1/1000 dilution) for 30 min at 22°C. The secondary antibody used was Alexa Fluor® 488 goat anti-rabbit IgG (H&L) (ab150077) at 1/2000 dilution for 30 min at 22°C. Isotype control antibody (black line) was rabbit IgG

(monoclonal) (0.1µg/1x10^6 cells) used under the same conditions. Unlabelled sample (blue line) was also used as a control. 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 HepG2 cells fixed with 80% methanol (5 min)/permeabilized with 0.1% PBS-Tween for 20 min used under the same conditions. This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab137123).

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