abcam

ab240042

Anti-FXR1 antibody [EPR7932] - BSA and Azide free

Recombinant | RabMAb | KO Validated

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	EPR7932
Purification technique	Affinity purification Protein A
Dissociation constant	5.3 x 10^{-12} M
Concentration	1.041 mg/mL The concentration of this product may be batch-dependent Batch concentration finder →

Reactivity data

IHC-P

Tested

Species	Human
Dilution info	-

Notes	-

Predicted

Species	Mouse, Rat
Dilution info	-
Notes	-

IP

Not recommended

Species	Human, Mouse, Rat
Dilution info	-
Notes	-

WB

Tested

Species	Human
Dilution info	-
Notes	-

Expected

Species	Mouse, Rat
Dilution info	Use at an assay dependent concentration.
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 Fragile X mental retardation syndrome-related protein 1

Function mRNA-binding protein that acts as a regulator of mRNAs translation and/or stability, and which is required for various processes, such as neurogenesis, muscle development and spermatogenesis (PubMed:17382880, PubMed:20417602, PubMed:30067974, PubMed:34731628, PubMed:35989368, PubMed:36306353). Specifically binds to AU-rich elements (AREs) in the 3'-UTR of target mRNAs (PubMed:17382880, PubMed:34731628). Promotes formation of some phase-separated membraneless compartment by undergoing liquid-liquid phase separation upon binding to AREs-containing mRNAs, leading to assemble mRNAs into cytoplasmic ribonucleoprotein granules that concentrate mRNAs with associated regulatory factors (By similarity). Required to activate translation of stored mRNAs during late spermatogenesis: acts by undergoing liquid-liquid phase separation to assemble target mRNAs into cytoplasmic ribonucleoprotein granules that recruit translation initiation factor EIF4G3 to activate translation of stored mRNAs in late spermatids (By similarity). Promotes translation of MYC transcripts by recruiting the eIF4F complex to the translation start site (PubMed:34731628). Acts as a negative regulator of inflammation in response to IL19 by promoting destabilization of pro-inflammatory transcripts (PubMed:30067974). Also acts as an inhibitor of inflammation by binding to TNF

mRNA, decreasing TNF protein production (By similarity). Acts as a negative regulator of AMPA receptor GRIA2/GluA2 synthesis during long-lasting synaptic potentiation of hippocampal neurons by binding to GRIA2/GluA2 mRNA, thereby inhibiting its translation (By similarity). Regulates proliferation of adult neural stem cells by binding to CDKN1A mRNA and promoting its expression (By similarity). Acts as a regulator of sleep and synaptic homeostasis by regulating translation of transcripts in neurons (By similarity). Required for embryonic and postnatal development of muscle tissue by undergoing liquid-liquid phase separation to assemble target mRNAs into cytoplasmic ribonucleoprotein granules (PubMed:30770808). Involved in the nuclear pore complex localization to the nuclear envelope by preventing cytoplasmic aggregation of nucleoporins: acts by preventing ectopic phase separation of nucleoporins in the cytoplasm via a microtubule-dependent mechanism (PubMed:32706158). Plays a role in the stabilization of PKP2 mRNA and therefore protein abundance, via its interaction with PKP3 (PubMed:25225333). May also do the same for PKP2, PKP3 and DSP via its interaction with PKP1 (PubMed:25225333). Forms a cytoplasmic messenger ribonucleoprotein (mRNP) network by packaging long mRNAs, serving as a scaffold that recruits proteins and signaling molecules. This network facilitates signaling reactions by maintaining proximity between kinases and substrates, crucial for processes like actomyosin reorganization (PubMed:39106863).

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

ab240042 is the carrier-free version of ab129089.

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 FXR1 protein also known as Fragile X Mental Retardation Syndrome-related Protein 1 weighs approximately 80 kDa and is expressed in various tissues including the brain heart and the skeletal muscles. It belongs to the family of RNA-binding proteins that also includes FMR1 and FXR2. Mechanically FXR1 interacts with mRNA participating in the regulation of its stability and translation. This regulation allows cells to control protein synthesis important for many cellular processes.
Biological function summary	FXR1 is involved in the post-transcriptional regulation of gene expression important for normal cell function and development. It forms a complex with FMRP playing an important role in the transport and translation of specific subsets of mRNAs in neurons. This interaction suggests it contributes significantly to the synaptic plasticity mechanisms influencing learning and memory. Moreover FXR1 also seems to have functions in cell proliferation and muscle differentiation.
Pathways	FXR1 participates in key regulatory pathways of protein synthesis and neuronal communication. It is significant in the mTOR signaling pathway where it potentially interacts with other proteins like FXR2 and FMR1 to modulate translational control. FXR1's involvement in this pathway suggests a role in cellular growth and neuron-specific processes affecting how cells respond to various growth signals by altering protein synthesis rates.
Associated diseases and disorders	FXR1 links to psychiatric disorders including schizophrenia and bipolar disorder. Gene dysregulation in FXR1 may disrupt normal synaptic functioning contributing to the pathophysiology of these conditions. In muscular dystrophies altered FXR1 expression has been reported associating it with muscle tissue protein dynamics along with FMR1 influencing muscle regeneration and repair mechanisms. These associations highlight FXR1’s potential as a therapeutic target in neurodevelopmental and muscle-related diseases.

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.

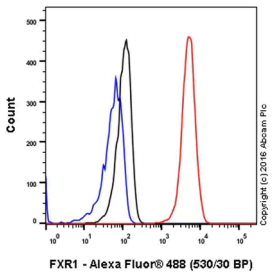
We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

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.

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5 product images



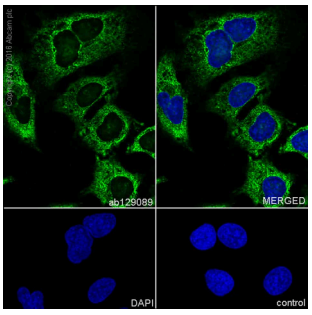
Flow Cytometry (Intracellular) - Anti-FXR1 antibody [EPR7932] - BSA and Azide free (ab240042)

FXR1 Flow Cytometry (Intracellular) staining using rabbit Anti-FXR1 antibody

ab129089 staining FXR1 in the human cell line HeLa (human cervix adenocarcinoma) by intracellular flow cytometry. Cells were fixed with 4% paraformaldehyde, permiabilised with 90% methanol and the sample was incubated with the primary antibody at a dilution of 1/60. A goat anti rabbit IgG (Alexa Fluor® 488) at a dilution of 1/2000 was used as the secondary antibody. Isoytype control: Rabbit monoclonal IgG (Black)

Unlabelled control: Cell without incubation with primary antibody and secondary antibody (Blue)

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab129089).

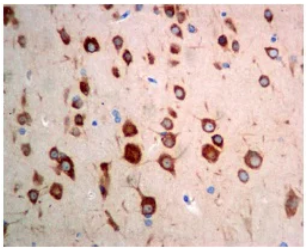


Immunocytochemistry/ Immunofluorescence - Anti-FXR1 antibody [EPR7932] - BSA and Azide free (ab240042)

FXR1 Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-FXR1 antibody

Immunocytochemistry/Immunofluorescence analysis of HeLa (Human epithelial cell line from cervix adenocarcinoma) labeling FXR1 with purified ab129089 at 1/500 dilution. Cells were fixed with 100% methanol. ab150077 Goat anti rabbit IgG (Alexa Fluor®488) at 1/1000 was used as the secondary antibody. Nuclei were counterstained with DAPI. PBS was used instead of the primary antibody as the negative control.

This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab129089).

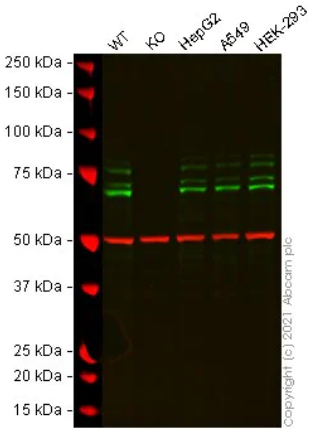


Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-FXR1 antibody [EPR7932] - BSA and Azide free (ab240042)

FXR1 Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) staining using rabbit Anti-FXR1 antibody

ab129089, at a dilution of 1/100, staining FXR1 in paraffin-embedded Human brain tissue by Immunohistochemistry.
This data was developed using the same antibody clone in a different buffer formulation containing PBS, BSA, glycerol, and sodium azide (ab129089).

Perform heat mediated antigen retrieval before commencing with IHC staining protocol.



Western blot - Anti-FXR1 antibody [EPR7932] - BSA and Azide free (ab240042)

FXR1 Western blot staining using rabbit Anti-FXR1 antibody

Lanes 1 - 5: Merged signal (red and green). Green - ab129089 observed at 70-80 kDa. Red - loading control ab7291 (Mouse anti-Alpha Tubulin [DM1A]) observed at 55 kDa.
ab129089 was shown to react with FXR1 in wild-type HeLa cells in Western blot with loss of signal observed in FXR1 knockout cell line ab264017 (knockout cell lysate ab264505). Wild-type HeLa and FXR1 knockout cell lysates were subjected to SDS-PAGE. Membranes were blocked in 3 % milk in TBS-T (0.1 % Tween®) before incubation with ab129089 and ab7291 (Mouse anti-Alpha Tubulin [DM1A]) overnight at 4 °C at a 1 in 1000 dilution and a 1 in 20000 dilution respectively. Blots were incubated with Goat anti-Rabbit IgG H&L (IRDye® 800CW) preabsorbed (ab216773) and Goat anti-Mouse IgG H&L (IRDye® 680RD) preabsorbed (ab216776) secondary antibodies at 1 in 20000 dilution for 1 h at room temperature before imaging.

All lanes:
Western blot - Anti-FXR1 antibody [EPR7932] - BSA and Azide free (ab240042) at 1/1000 dilution

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

Lane 2:
FXR1 knockout HeLa cell lysate at 20 µg

Lane 3:
HepG2 cell lysate at 20 µg

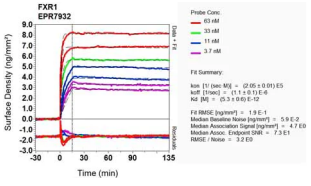
Lane 4:
A549 cell lysate at 20 µg

Lane 5:
HEK-293 cell lysate at 20 µg

Performed under reducing conditions.

Predicted band size: 70 kDa

Observed band size: 70-80 kDa



OI-RD Scanning - Anti-FXR1 antibody [EPR7932] - BSA and Azide free (ab240042)

We have systematically measured KD (the equilibrium dissociation constant between the antibody and its antigen), of more than 840 recombinant antibodies to assess not only their individual KD values but also to see the average affinity of antibody. Based on the comparison with published literature values for mouse monoclonal antibodies, Recombinant antibodies appear to be on average 1-2 order of magnitude higher affinity.

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