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FXR1 Antibody (N-term)

Affinity Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP20184a

Product Information

Application	WB, E
Primary Accession	P51114
Other Accession	Q5XI81, Q61584, O70523, Q2TBT7, NP_005078.2
Reactivity	Mouse
Predicted	Bovine, Hamster, Rat
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB41819
Calculated MW	69721
Antigen Region	37-66

Additional Information

Gene ID	8087
Other Names	Fragile X mental retardation syndrome-related protein 1, hFXR1p, FXR1
Target/Specificity	This FXR1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 37-66 amino acids from the N-terminal region of human FXR1.
Dilution	WB~~1:1000 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	FXR1 Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	FXR1 {ECO:0000303|PubMed:7781595, ECO:0000312|HGNC:HGNC:4023}
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).

Cellular Location

Cytoplasm, Cytoplasmic ribonucleoprotein granule. Cytoplasm, Stress granule. Cytoplasm. Cell projection, dendrite {ECO:0000250|UniProtKB:Q61584}. Cell projection, dendritic spine {ECO:0000250|UniProtKB:Q61584}. Cell projection, axon {ECO:0000250|UniProtKB:Q61584}. Nucleus envelope. Postsynapse {ECO:0000250|UniProtKB:Q61584}. Note=Specifically localizes to cytoplasmic ribonucleoprotein membraneless compartments (By similarity). Localizes to stress granules following phosphorylation at Ser-420 by PAK1 (PubMed:20417602). Adjacent to Z-lines in muscles (By similarity). {ECO:0000250|UniProtKB:Q61584, ECO:0000269|PubMed:20417602}

Tissue Location

Expressed in all tissues examined including heart, brain, kidney and testis (PubMed:7781595, PubMed:9259278). In brain, present at high level in neurons and especially in the Purkinje cells at the interface between the granular layer and the molecular layer (at protein level) (PubMed:9259278).

Background

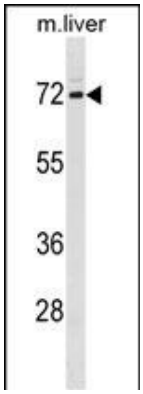
The protein encoded by this gene is an RNA binding protein that interacts with the functionally-similar proteins FMR1 and FXR2. These proteins shuttle between the nucleus and cytoplasm and associate with

polyribosomes, predominantly with the 60S ribosomal subunit. Three transcript variants encoding different isoforms have been found for this gene.

References

Coffee, R.L. Jr., et al. Dis Model Mech 3 (7-8), 471-485 (2010) :
Darnell, J.C., et al. Hum. Mol. Genet. 18(17):3164-3177(2009)
Purcell, S.M., et al. Nature 460(7256):748-752(2009)
Davidovic, L., et al. J. Med. Genet. 45(10):679-685(2008)
Vasudevan, S., et al. Cell 128(6):1105-1118(2007)

Images



FXR1 Antibody (N-term) (Cat. #AP20184a) western blot analysis in mouse liver tissue lysates (35ug/lane).This demonstrates the FXR1 antibody detected the FXR1 protein (arrow).