FMR1 Antibody – Rabbit Polyclonal

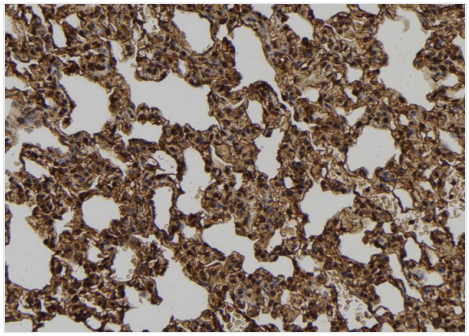
PRODUCT OVERVIEW

Product Name	FMR1, Polyclonal Antibody
Full Product Name	FMR1 Antibody
Product Gene Name	anti-FMR1 antibody
Product Synonym Names	FMR 1; Fmr1; Fmr1 gene; FMR1_HUMAN; FMRP; Fragile X mental retardation 1; Fragile X mental retardation 1 protein; Fragile X mental retardation protein 1; Fragile X mental retardation protein; fragile X mental retardation syndrome-related protein 1; fragile X mental retardation, autosomal homolog 1; FRAXA; fxr1; MGC87458; POF; POF1; Protein FMR-1; Protein FMR1; wu:fb16f11; wu:fd18c10; zgc:66226
Clonality	Polyclonal
Isotype	IgG
Host	Rabbit
Species Reactivity	Human, Mouse, Rat
Form/Format	Liquid Phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Purity/Purification	The antiserum was purified by peptide affinity chromatography using SulfoLink Coupling Resin.
Concentration	1mg/ml (lot specific)
Specificity	FMR1 antibody detects endogenous levels of total FMR1
Preparation and Storage	Store at -20 degree C. Stable for 12 months from date of receipt.
Antibody/Peptide Pairs	FMR1 peptide (MBS9626784) is used for blocking the activity of FMR1 antibody (MBS9608072)
Molecular Weight	Observed: 71 kDa Predicted: 72 kDa
3D Structure	ModBase 3D Structure for Q06787
Supply Chain Verification	Manufactured in a lab with traceable raw materials manufactured on site. Coordinated product portfolio of antibodies, pairs, conjugates, recombinant proteins, and immunoassay materials available, please inquire.
Immunogen	A synthesized peptide derived from human FMR1
Subcellular Location	Cytoplasm. Nucleus > Nucleolus.
Tissue Specificity	Expressed in the brain, cerebellum and testis (PubMed:8401578). Also expressed in epithelial tissues (PubMed:8401578). Expressed in mature oligodendrocytes (OLGs) (PubMed:23891804). Expressed in fibroblast (PubMed:24204304). Expressed in neurons, Purkinje cells and spermatogonias (at protein level) (PubMed:8401578). Expressed in brain, testis and placenta (PubMed:8504300). Expressed in neurons and lymphocytes (PubMed:8504300).
Conjugation	Unconjugated
ISO Certification	Manufactured in an ISO 9001:2015 Certified Laboratory.
Applications Tested/Suitable for anti-FMR1 antibody	Western Blot (WB), Immunohistochemistry (IHC), ELISA (EIA)
Application Notes for anti-FMR1 antibody	WB: 1:500-1:2000 IHC: 1:50-1:200

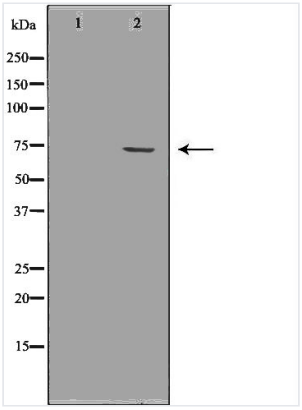
Related Product Information for anti-FMR1 antibody

Description: The protein encoded by this gene binds RNA and is associated with polysomes. The encoded protein may be involved in mRNA trafficking from the nucleus to the cytoplasm. A trinucleotide repeat (CGG) in the 5' UTR is normally found at 6-53 copies, but an expansion to 55-230 repeats is the cause of fragile X syndrome. Expansion of the trinucleotide repeat may also cause one form of premature ovarian failure (POF1). Multiple alternatively spliced transcript variants that encode different protein isoforms and which are located in different cellular locations have been described for this gene.
Function: Multifunctional polyribosome-associated RNA-binding protein that plays a central role in neuronal development and synaptic plasticity through the regulation of alternative mRNA splicing, mRNA stability, mRNA dendritic transport and postsynaptic local protein synthesis of a subset of mRNAs (PubMed:16631377, PubMed:18653529, PubMed:19166269, PubMed:23235829, PubMed:25464849). Plays a role in the alternative splicing of its own mRNA (PubMed:18653529). Plays a role in mRNA nuclear export (By similarity). Together with export factor NXF2, is involved in the regulation of the NXF1 mRNA stability in neurons (By similarity). Stabilizes the scaffolding postsynaptic density protein DLG4/PSD-95 and the myelin basic protein (MBP) mRNAs in hippocampal neurons and glial cells, respectively; this stabilization is further increased in response to metabotropic glutamate receptor (mGluR) stimulation (By similarity). Plays a role in selective delivery of a subset of dendritic mRNAs to synaptic sites in response to mGluR activation in a kinesin-dependent manner (By similarity). Plays a role as a repressor of mRNA translation during the transport of dendritic mRNAs to postnyaptic dendritic spines (PubMed:11532944, PubMed:11157796, PubMed:12594214, PubMed:23235829). Component of the CYFIP1-EIF4E-FMR1 complex which blocks cap-dependent mRNA translation initiation (By similarity). Represses mRNA translation by stalling ribosomal translocation during elongation (By similarity). Reports are contradictory with regards to its ability to mediate translation inhibition of MBP mRNA in oligodendrocytes (PubMed:23891804). Also involved in the recruitment of the RNA helicase MOV10 to a subset of mRNAs and hence regulates microRNA (miRNA)-mediated translational repression by AGO2 (PubMed:14703574, PubMed:17057366, PubMed:25464849). Facilitates the assembly of miRNAs on specific target mRNAs (PubMed:17057366). Plays also a role as an activator of mRNA translation of a subset of dendritic mRNAs at synapses (PubMed:19097999, PubMed:19166269). In response to mGluR stimulation, FMR1-target mRNAs are rapidly derepressed, allowing for local translation at synapses (By similarity). Binds to a large subset of dendritic mRNAs that encode a myriad of proteins involved in pre-and postsynaptic functions (PubMed:7692601, PubMed:11719189, PubMed:11157796, PubMed:12594214, PubMed:17417632, PubMed:23235829, PubMed:24448548). Binds to 5'-ACU[GU]-3' and/or 5'-[AU]GGA-3' RNA consensus sequences within mRNA targets, mainly at coding sequence (CDS) and 3'-untranslated region (UTR) and less frequently at 5'-UTR (PubMed:23235829). Binds to intramolecular G-quadruplex structures in the 5'-or 3'-UTRs of mRNA targets (PubMed:11719189, PubMed:18579868, PubMed:25464849, PubMed:25692235). Binds to G-quadruplex structures in the 3'-UTR of its own mRNA (PubMed:7692601, PubMed:11532944, PubMed:12594214, PubMed:15282548, PubMed:18653529). Binds also to RNA ligands harboring a kissing complex (kc) structure; this binding may mediate the association of FMR1 with polyribosomes (PubMed:15805463). Binds mRNAs containing U-rich target sequences (PubMed:12927206). Binds to a triple stem-loop RNA structure, called Sod1 stem loop interacting with FMRP (SoSLIP), in the 5'-UTR region of superoxide dismutase SOD1 mRNA (PubMed:19166269). Binds to the dendritic, small non-coding brain cytoplasmic RNA 1 (BC1); which may increase the association of the CYFIP1-EIF4E-FMR1 complex to FMR1 target mRNAs at synapses (By similarity). Associates with export factor NXF1 mRNA-containing ribonucleoprotein particles (mRNPs) in a NXF2-dependent manner (By similarity). Binds to a subset of miRNAs in the brain (PubMed:14703574, PubMed:17057366). May associate with nascent transcripts in a nuclear protein NXF1-dependent manner (PubMed:18936162). In vitro, binds to RNA homopolymer; preferentially on poly(G) and to a lesser extent on poly(U), but not on poly(A) or poly(C) (PubMed:7688265, PubMed:7781595, PubMed:12950170, PubMed:15381419, PubMed:8156595). Moreover, plays a role in the modulation of the sodium-activated potassium channel KCNT1 gating activity (PubMed:20512134). Negatively regulates the voltage-dependent calcium channel current density in soma and presynaptic terminals of dorsal root ganglion (DRG) neurons, and hence regulates synaptic vesicle exocytosis (By similarity). Modulates the voltage-dependent calcium channel CACNA1B expression at the plasma membrane by targeting the channels for proteosomal degradation (By similarity). Plays a role in regulation of MAP1B-dependent microtubule dynamics during neuronal development (By similarity). Recently, has been shown to play a translation-independent role in the modulation of presynaptic action potential (AP) duration and neurotransmitter release via large-conductance calcium-activated potassium (BK) channels in hippocampal and cortical excitatory neurons (PubMed:25561520). Finally, FMR1 may be involved in the control of DNA damage response (DDR) mechanisms through the regulation of ATR-dependent signaling pathways such as histone H2AFX/H2A.x and BRCA1 phosphorylations (PubMed:24813610).
Subunit Structure: Homodimer (PubMed:7489725, PubMed:12950170, PubMed:16636078). Forms heterodimer with FXR1; heterodimerization occurs in a methylation-dependent manner (PubMed:7489725, PubMed:11157796, PubMed:16636078). Forms heterodimer with FXR2 (PubMed:7489725, PubMed:11157796). Homooligomer (PubMed:11157796, PubMed:18664458). Component of the CYFIP1-EIF4E-FMR1 complex at least composed of CYFIP, EIF4E and FMR1; this mRNA cap binding complex formation increases in presence of the brain cytoplasmic RNA BC1 and is dynamically regulated in an activity-dependent manner to repress and then possibly release dendritic mRNAs for translation in response to mGluR stimulation (By similarity). Associates with the SMN core complex that contains SMN, GEMIN2/SIP1, DDX20/GEMIN3, GEMIN4, GEMIN5, GEMIN6, GEMIN7, GEMIN8 and STRAP/UNRIP (PubMed:18093976). Part of a ribonucleoprotein complex with AGO2/EIF2C2 and miRNAs (PubMed:14703574). Interacts with AGO2/EIF2C2 (PubMed:14703574). Interacts (via C-terminus) with CACNA1B; this interaction induces a deacrease in the number of presynaptic functional CACNA1B channels at the cell surface (By similarity). Interacts with CYFIP1; this interaction recruits CYFIP1 to capped mRNA (By similarity). Interacts with CYFIP2 (By similarity). Interacts with EIF5; this interaction occurs in a RNA-dependent manner (By similarity). Interacts with dynein (By similarity). Interacts with FXR1 and FXR2 (PubMed:8668200, PubMed:14532325, PubMed:15380484). Interacts with methylated histone H3 (PubMed:24813610). Interacts with IGF2BP1; this

Other Notes	Small volumes of anti-FMR1 antibody vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply.
Searchable Terms for FMR1 purchase	MBS9608072 is an antibody targeting FMR1. Also known as FMR1 Antibody. Reactive in Human, Mouse, Rat. Host: Rabbit.



Immunohistochemistry (IHC) of anti-FMR1 antibody
MBS9608072 at 1/100 staining Rat lung tissue by IHC-P. The sample was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The sample was then blocked and incubated with the antibody for 1.5 hours at 22 degree C. An HRP conjugated goat anti-rabbit antibody was used as the secondary.



Western Blot (WB) of anti-FMR1 antibody
Western blot analysis of Hela whole cell lysates, using FMR1 Antibody. The lane on the left is treated with the antigen-specific peptide.

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for FMR1. It may not necessarily be applicable to this product.

NCBI GI #	297374777
NCBI GeneID	2332
NCBI Accession #	NP_001172004.1
UniProt Primary Accession #	Q06787
UniProt Secondary Accession #	Q16578; Q5PQZ6; Q99054; A6NNH4; D3DWT0; D3DWT1; D3DWT2; G8JL90
UniProt Related Accession #	Q06787
GenBank Nucleotide #	NM_001185075.1
NCBI Official Full Name	synaptic functional regulator FMR1 isoform ISO6
NCBI Official Synonym Full Names	fragile X mental retardation 1
NCBI Official Symbol	FMR1
NCBI Official Synonym Symbols	POF; FMRP; POF1; FRAXA
UniProt Protein Name	Synaptic functional regulator FMR1
UniProt Synonym Protein Names	Fragile X mental retardation protein 1
Protein Family	Mat- sexual cell fertilization-promoting factor
UniProt Gene Name	FMR1
UniProt Synonym Gene Names	Protein FMR-11 PublicationManual assertion based on opinion iniRef.1
NCBI Protein Information	synaptic functional regulator FMR1

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UniProt Comments for FMR1	Multifunctional polyribosome-associated RNA-binding protein that plays a central role in neuronal development and synaptic plasticity through the regulation of alternative mRNA splicing, mRNA stability, mRNA dendritic transport and postsynaptic local protein synthesis of a subset of mRNAs (PubMed:16631377, PubMed:18653529, PubMed:19166269, PubMed:23235829, PubMed:25464849). Plays a role in the alternative splicing of its own mRNA (PubMed:18653529). Plays a role in mRNA nuclear export (). Together with export factor NXF2, is involved in the regulation of the NXF1 mRNA stability in neurons (). Stabilizes the scaffolding postsynaptic density protein DLG4/PSD-95 and the myelin basic protein (MBP) mRNAs in hippocampal neurons and glial cells, respectively; this stabilization is further increased in response to metabotropic glutamate receptor (mGluR) stimulation (). 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Research Articles on FMR1	**1.** Study found no significant relationship between the longitudinal changes of the CGG repeat in the FMR1 promoter region and premature ovarian failure etiology which can be attributed to the genetic heterogeneity nature of the disease, the possible involvement of the other genomic variations with the ovarian function and the reproductive health.

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