

Rabbit FMR1 Polyclonal Antibody | anti-FMR1 antibody

Phospho-FMR1 (Ser500) Antibody

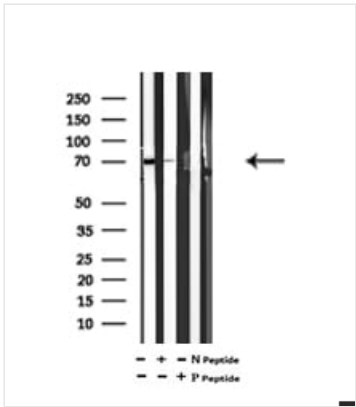
CATALOG #	HOST	REACTIVITY	APPLICATIONS
AAA328262	Rabbit	Human, Mouse, RatPredicted: Pig, Bovine, Sheep, Rabbit, Dog, Chicken, Xenopus	ELISA, Immunohistochemistry, Western Blot

PRODUCT SYNONYMS

FMR1; Polyclonal Antibody; Phospho-FMR1 (Ser500) Antibody; 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; anti-FMR1 antibody

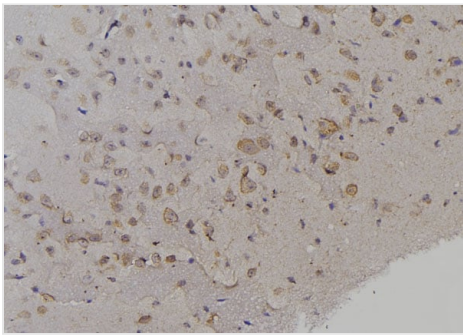
PRODUCT SPECIFICATIONS

Host	Rabbit
Reactivity	Human, Mouse, Rat Predicted: Pig, Bovine, Sheep, Rabbit, Dog, Chicken, Xenopus
Clonality	Polyclonal
Isotype	IgG
Specificity	Phospho-FMR1(Ser500) Antibody detects endogenous levels of FMR1 only when phosphorylated at Ser500.
Purity/Purification	Purified rabbit serum by affinity purification via sequential chromatography on phospho- and non-phospho-peptide affinity columns.
Form/Format	Liquid; Phosphate buffered saline, pH 7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Concentration	1mg/ml (varies by lot)
Sequence Length	632
Applicable Applications for anti-FMR1 antibody	ELISA (Peptide ELISA), IHC (Immunohistochemistry), WB (Western Blot)
Immunogen	A synthesized peptide derived from human FMR1 around the phosphorylation site of Ser500.
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).
Subcellular Location	Nucleus; Plasma Membrane; Nucleus; Nucleus
Preparation and Storage	Store at -20 degree C. Stable for 12 months from date of receipt.



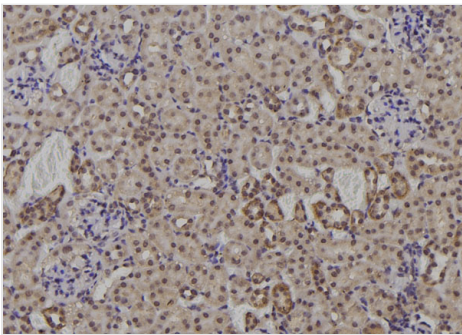
WB (Western Blot)

Western blot analysis of extracts of Human brain tissue sample, using Phospho-FMR1(Ser500) Antibody.



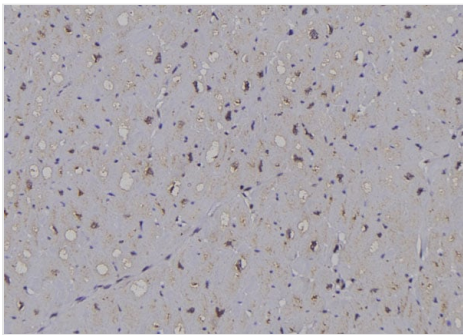
IHC (Immunohistochemistry)

At 1/100 staining mouse brain tissue sections by IHC-P. The tissue was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The tissue 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



IHC (Immunohistochemistry)

At 1/100 staining rat kidney tissue sections by IHC-P. The tissue was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The tissue 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



IHC (Immunohistochemistry)

At 1/100 staining human heart tissue sections by IHC-P. The tissue was formaldehyde fixed and a heat mediated antigen retrieval step in citrate buffer was performed. The tissue 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

Related Product Information for anti-FMR1 antibody

Description: 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).

Post Translational Modifications: Phosphorylated (PubMed:14532325). Phosphorylated on several serine residues. Phosphorylation at Ser-500 is required for phosphorylation of other nearby serine residues. Phosphorylation has no effect on the binding of individual mRNA species, but may affect the association with polyribosome.

Unphosphorylated FMR1 is associated with actively translating polyribosome, whereas a fraction of phosphorylated FMR1 is associated with apparently stalled polyribosome. Dephosphorylation by an activated phosphatase may release the FMR1-mediated translational repression and allow synthesis of a locally required protein at synapses (By similarity). Monoubiquitinated. Polyubiquitinated. Ubiquitinated and targeted for proteasomal degradation after activation of metabotropic glutamate receptor (mGluR). Methylated; methylation is necessary for heterodimerization with FXR1, association with polyribosomes, recruitment into stress granules and translation of FMR1 target mRNAs (PubMed:16636078). Methylated by PRMT1, PRMT3 and PRMT4, in vitro (PubMed:16922515). Isoform 10: Undergoes proteolytic cleavage; may be specifically cleaved by calpain-1/CAPN1 in cajal bodies (PubMed:24204304).

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 CYFIP1, 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

NCBI AND UNIPROT INFORMATION

NCBI GI #	544328
NCBI GeneID	2332
UniProt Accession #	Q06787
Molecular Weight	Observed: 71 kDa Predicted: 72 kDa
NCBI Official Full Name	Synaptic functional regulator FMR1
NCBI Official Synonym Full Names	fragile X mental retardation 1
NCBI Official Symbol	FMR1
NCBI Official Synonym Symbols	POF; FMRP; POF1; FRAXA
NCBI Protein Information	synaptic functional regulator FMR1
UniProt Protein Name	Fragile X mental retardation protein 1
UniProt Gene Name	FMR1
UniProt Synonym Gene Names	FMRP; Protein FMR-1
UniProt Entry Name	FMR1_HUMAN

For Research Use Only. Not for use in diagnostic or therapeutic procedures. Small volumes of product may become entrapped in the seal of the vial during shipment and storage; if necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the cap.

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