Datasheet for ABIN7553950

FMR1 Protein (AA 1-632) (His tag)

Go to Product page

Overview

Quantity:	1 mg
Target:	FMR1
Protein Characteristics:	AA 1-632
Origin:	Human
Source:	HEK-293 Cells
Protein Type:	Recombinant
Purification tag / Conjugate:	This FMR1 protein is labelled with His tag.
Application:	Western Blotting (WB), SDS-PAGE (SDS)

Product Details

Purpose:	Custom-made recombinat FMR1 Protein expressed in mammalien cells.
Sequence:	MEELVVEVRG SNGAFYKAFV KDVHEDSITV AFENNWQPDR QIPFHDVRFP PPVGYNKDIN ESDEVEVYSR ANEKEPCCWW LAKVRMIKGE FYVIEYAACD ATYNEIVTIE RLRSVNPNKP ATKDTFHKIK LDVPEDLRQM CAKEAAHKDF KKAVGAFSVT YDPENYQLVI LSINEVTSKR AHMLIDMHFR SLRTKLSLIM RNEEASKQLE SSRQLASRFH EQFIVREDLM GLAIGTHGAN IQQARKVPGV TAIDLDEDTC TFHIYGEDQD AVKKARSFLE FAEDVIQVPR NLVGKVIGKN GKLIQEIVDK SGVVRVRIEA ENEKNVPQEE EIMPPNSLPS NNSRVGPNAP EEKKHLDIKE NSTHFSQPNS TKVQRVLVAS SVVAGESQKP ELKAWQGMVP FVFVGTKDSI ANATVLLDYH LNYLKEVDQL RLERLQIDEQ LRQIGASSRP PPNRTDKEKS YVTDDGQGMG RGSRPYRNRG HGRRGPGYTS GTNSEASNAS ETESDHRDEL SDWSLAPTEE ERESFLRRGD GRRRGGGGRG QGGRGRGGGF KGNDDHSRTD NRPRNPREAK GRTTDGSLQI RVDCNNERSV HTKTLQNTSS EGSRLRTGKD RNQKKEKPDS VDGQQPLVNG VP **Sequence without tag. The proposed**

Product Details

	Purification-Tag is based on experiences with the expression system, a different complexity of the protein could make another tag necessary. In case you have a special request, please contact us.
Characteristics:	Key Benefits: • Made to order protein - from design to production - by highly experienced protein experts. • Protein expressed in mammalien cells and purified in one-step affinity chromatography • The optimized expression system ensures reliability for intracellular, secreted and transmembrane proteins. • State-of-the-art algorithm used for plasmid design (Gene synthesis). This protein is a made-to-order protein and will be made for the first time for your order. Our experts in the lab try to ensure that you receive soluble protein. If you are not interested in a full length protein, please contact us for individual protein fragments. The big advantage of ordering our made-to-order proteins in comparison to ordering custom made proteins from other companies is that there is no financial obligation in case the protein cannot be expressed or purified.
Purity:	> 90 % as determined by Bis-Tris Page, Western Blot
Grade:	custom-made

Target Details

Target:	FMR1
Alternative Name:	FMR1 (FMR1 Products)
Background:	Fragile X messenger ribonucleoprotein 1 (Fragile X messenger ribonucleoprotein) (FMRP) (Protein FMR-1),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 target mRNAs (PubMed:12417522, PubMed:16631377, PubMed:18653529, PubMed:19166269, PubMed:23235829, PubMed:25464849). Acts as an mRNA regulator by mediating formation of some phase-separated membraneless compartment: undergoes liquid-liquid phase separation upon binding to target mRNAs, leading to assemble mRNAs into cytoplasmic ribonucleoprotein granules that concentrate mRNAs with associated regulatory factors (PubMed:12417522, PubMed:30765518, PubMed:31439799). Plays a role in the

alternative splicing of its own mRNA (PubMed:18653529). 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). Undergoes liquid-liquid phase separation following phosphorylation and interaction with CAPRIN1, promoting formation of cytoplasmic ribonucleoprotein granules that concentrate mRNAs with factors that inhibit translation and mediate deadenylation of target mRNAs (PubMed:31439799). Acts as a repressor of mRNA translation in synaptic regions by mediating formation of neuronal ribonucleoprotein granules and promoting recruitmtent of EIF4EBP2 (PubMed:30765518). Plays a role as a repressor of mRNA translation during the transport of dendritic mRNAs to postsynaptic 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). Also plays 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). Plays a role in mRNA nuclear export (PubMed:31753916). Specifically recognizes and binds a subset of N6-methyladenosine (m6A)-containing mRNAs, promoting their nuclear export in a XPO1/CRM1-dependent manner (PubMed:31753916). Together with export factor NXF2, is involved in the regulation of the NXF1 mRNA stability in neurons (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 homomer, 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 proteasomal 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 H2AX/H2A.x and BRCA1 phosphorylations (PubMed:24813610). {ECO:0000250|UniProtKB:P35922, ECO:0000250|UniProtKB:Q80WE1, ECO:0000269|PubMed:11157796, ECO:0000269|PubMed:11532944, ECO:0000269|PubMed:11719189, ECO:0000269|PubMed:12417522, ECO:0000269|PubMed:12594214, ECO:0000269|PubMed:12927206, ECO:0000269|PubMed:12950170, ECO:0000269|PubMed:14703574, ECO:0000269|PubMed:15282548, ECO:0000269|PubMed:15381419, ECO:0000269|PubMed:15805463, ECO:0000269|PubMed:16631377, ECO:0000269|PubMed:17057366, ECO:0000269|PubMed:17417632, ECO:0000269|PubMed:18579868, ECO:0000269|PubMed:18653529, ECO:0000269|PubMed:18936162, ECO:0000269|PubMed:19097999,

Target Details

	ECO:0000269|PubMed:19166269, ECO:0000269|PubMed:20512134, ECO:0000269|PubMed:23235829, ECO:0000269|PubMed:23891804, ECO:0000269|PubMed:24448548, ECO:0000269|PubMed:24813610, ECO:0000269|PubMed:25464849, ECO:0000269|PubMed:25561520, ECO:0000269|PubMed:25692235, ECO:0000269|PubMed:30765518, ECO:0000269|PubMed:31439799, ECO:0000269|PubMed:31753916, ECO:0000269|PubMed:7688265, ECO:0000269|PubMed:7692601, ECO:0000269|PubMed:7781595, ECO:0000269|PubMed:8156595}., FUNCTION: [Isoform 10]: Binds to RNA homomer, preferentially on poly(G) and to a lesser extent on poly(U), but not on poly(A) or poly(C) (PubMed:24204304). May bind to RNA in Cajal bodies (PubMed:24204304). {ECO:0000269|PubMed:24204304}., FUNCTION: [Isoform 6]: Binds to RNA homomer, preferentially on poly(G) and to a lesser extent on poly(U), but not on poly(A) or poly(C) (PubMed:24204304). May bind to RNA in Cajal bodies (PubMed:24204304). {ECO:0000269|PubMed:24204304}., FUNCTION: (Microbial infection) Acts as a positive regulator of influenza A virus (IAV) replication. Required for the assembly and nuclear export of the viral ribonucleoprotein (vRNP) components. {ECO:0000269|PubMed:24514761}.
Molecular Weight:	71.2 kDa
UniProt:	Q06787
Pathways:	Regulation of Muscle Cell Differentiation, Skeletal Muscle Fiber Development

Application Details

Application Notes:	In addition to the applications listed above we expect the protein to work for functional studies as well. As the protein has not been tested for functional studies yet we cannot offer a guarantee though.
Restrictions:	For Research Use only

Handling

Format:	Liquid
Buffer:	The buffer composition is at the discretion of the manufacturer.
Handling Advice:	Avoid repeated freeze-thaw cycles.
Storage:	-80 °C
Storage Comment:	Store at -80°C.

Handling

Expiry Date:	12 months

