Store at -20°C

#48267

Fragile X/FMRP Signaling Pathway Antibody Sampler Kit

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www.cellsignal.com/support

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New 04/20

For Research Use Only. Not For Use In Diagnostic Procedures.

Products Included	Product #	Quantity	Mol. Wt.	Isotype/Source
mGluR1 (D5H10) Rabbit mAb	12551	20 µl	145, >300 kDa	Rabbit IgG
mGluR5 (D6E7B) Rabbit mAb	55920	20 µl	150, 300 kDa	Rabbit IgG
FMRP (D14F4) Rabbit mAb	7104	20 µl	80 kDa	Rabbit IgG
FXR1 (D10A2) XP® Rabbit mAb	12295	20 µl	78-80, 82-84 kDa	Rabbit IgG
FXR2 (D85D6) Rabbit mAb	7098	20 µl	95 kDa	Rabbit IgG
CYFIP1 Antibody	44353	20 µl	145 kDa	Rabbit
Phospho-eEF2 (Thr56) Antibody	2331	20 µl	95 kDa	Rabbit
eEF2 Antibody	2332	20 µl	95 kDa	Rabbit
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µl		Goat

See www.cellsignal.com for individual component applications, species cross-reactivity, dilutions and additional application protocols.

Description: The Fragile X/FMRP Signaling Pathway Antibody Sampler Kit provides an economical means of detecting signaling components of the Fragile X/FMRP signaling pathway. The kit includes enough antibodies to perform two western blot experiments with each primary antibody.

Background: Fragile X syndrome, a frequent cause of inherited mental retardation, often results from expansion of the CGG trinucleotide repeat in the gene that encodes the fragile X mental retardation protein (FMRP, [1]). FMRP (also known as FMR1) and its two autosomal homologs (FXR1 and FXR2) all bind RNA and play a role in the pathogenesis of fragile X syndrome (1-3). Each of these related proteins can associate with one another as well as form homodimers and complexes with other RNA-binding proteins like cytoplasmic FMRP interacting protein 1 (CYFIP1, [3,4]). FMRP, FXR1, FXR2, and CYFIP1 have been implicated in the translational regulation of mRNAs (5,6). Importantly, this complex of proteins may be dynamically regulated to drive protein synthesis-dependent forms of synaptic plasticity in response to specific activity. That is, activation of metabotropic glutamate receptors, including mGluR1 and mGlur5, can regulate FMRP-dependent forms of translation via post-translational modification of eukaryotic elongation factor 2 (eEF2) to locally control dynamic translation of important synaptic proteins, which, subsequently, alter synaptic function (7-9).

Specificity/Sensitivity: Each antibody in the Fragile X/FMRP Signaling Pathway Antibody Sampler Kit detects endogenous levels of its target protein. Phospho-eEF2 (Thr56) Antibody detects endogenous levels of eEF2 only when phosphorylated at Thr56. It does not recognize eEF2 phosphorylated at other sites.

Source/Purification: Monoclonal antibodies are produced by immunizing rabbits with synthetic peptides corresponding to Gly552 of human FMRP protein, Leu1105 of human mGluR1 protein, Gly574 of human FXR1 protein, and Gly477 of human FXR2 protein. mGluR5 (D6E7B) Rabbit mAb is produced by immunizing animals with recombinant protein specific to the carboxy terminus of human mGluR5 protein. eEF2 Antibody and CYFIP1 Antibody are produced by immunizing animals with a synthetic peptide corresponding to residues at the amino-terminus of human eEF2 and residues surrounding Pro527 of human CYFIP1 protein, respectively. Phospho-eEF2 (Thr56) Antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Thr56 of human eEF2. Antibodies are purified by protein A and peptide affinity chromatography.

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. *Do not aliquot the antibodies.*

For product specific protocols and a complete listing of recommended companion products please see the product web page at www.cellsignal.com.

Background References:

(1) Verkerk, A.J. et al. (1991) *Cell* 65, 905-14.
(2) Siomi, M.C. et al. (1995) *EMBO J* 14, 2401-8.
(3) Zhang, Y. et al. (1995) *EMBO J* 14, 5358-66.
(4) Abekhoukh, S. et al. (2017) *Dis Model Mech* 10, 463-74.
(5) Linder, B. et al. (2008) *Hum Mol Genet* 17, 3236-46.
(6) De Rubeis, S. et al. (2013) *Neuron* 79, 1169-82.
(7) Park, S. et al. (2008) *Neuron* 59, 70-83.
(8) Barnes, S.A. et al. (2015) *J Neurosci* 35, 15073-81.
(9) Paul, A. et al. (2019) *Front Mol Neurosci* 12, 97.

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Applications: **W**—Western **IP**—Immunoprecipitation **IHC**—Immunohistochemistry **ChIP**—Chromatin Immunoprecipitation **IF**—Immunofluorescence **F**—Flow cytometry **E-P**—ELISA-Peptide **Species Cross-Reactivity:** **H**—human **M**—mouse **R**—rat **Hm**—hamster **Mk**—monkey **Mi**—mink **C**—chicken **Dm**—D. melanogaster **X**—Xenopus **Z**—zebrafish **B**—bovine **Dg**—dog **Pg**—pig **Sc**—S. cerevisiae **Ce**—C. elegans **Hr**—Horse **All**—all species expected Species enclosed in parentheses are predicted to react based on 100% homology.