SANTA CRUZ BIOTECHNOLOGY, INC.

CYFIP1 siRNA (h): sc-60473

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The Power to Question

BACKGROUND

Fragile X syndrome is the most frequent form of inherited mental retardation and is a result of transcriptional silencing of the FMR1 gene on the X chromosome. The FMR1 protein (also designated FMRP) is an RNA-binding protein that associates with polyribosomes and is a likely component of a messenger ribonuclear protein (mRNP) particle. FMR1 can also interact with two fragile X syndrome related factors, FXR1 (also designated FXR1P) and FXR2 (also designated FXR2P). These proteins form heterodimers through their N-terminal coiled-coiled domains. CYFIP1 and CYFIP2 (also known as cytoplasmic FMRP interacting proteins 1 and 2, respectively, and as Sra-1 in mouse) both interact with FMR1 but CYFIP2 also reacts with FXR1 and FXR2. CYFIP1 and CYFIP2 bind GTP-bound Rac 1 to release FMRP in its active state, which is thought to regulate mRNA translation of neural cytoskeletal proteins. A loss of CYFIP1 and CYFIP2 leads to mutant neurons with defective axonal growth and motor function.

REFERENCES

1. Schenck, A., et al. 2001. A highly conserved protein family interacting with the fragile X mental retardation protein (FMRP) and displaying selective interactions with FMRP-related proteins FXR1P and FXR2P. Proc. Natl. Acad. Sci. USA 98: 8844-8849.
2. Billuart, P., et al. 2003. From fragile X mental retardation protein to Rac 1 GTPase: new insights from Fly CYFIP. Neuron 38: 843-845.
3. Schenck, A., et al. 2003. CYFIP/Sra-1 controls neuronal connectivity in *Drosophila* and links the Rac 1 GTPase pathway to the fragile X protein. Neuron 38: 887-898.
4. Kunda, P., et al. 2003. Abi, Sra1, and Kette control the stability and localization of SCAR/WAVE to regulate the formation of Actin-based protrusions. Curr. Biol. 13:1867-1875.
5. Schenck, A., et al. 2004. WAVE/SCAR, a multifunctional complex coordinating different aspects of neuronal connectivity. Dev. Biol. 274: 260-270.
6. Brembu, T., et al. 2004. NAPP and PIRP encode subunits of a putative wave regulatory protein complex involved in plant cell morphogenesis. Plant Cell 16: 2335-2349. Erratum in 2004 Plant Cell 16: 3168.

CHROMOSOMAL LOCATION

Genetic locus: CYFIP1 (human) mapping to 15q11.2.

PRODUCT

CYFIP1 siRNA (h) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see CYFIP1 shRNA Plasmid (h): sc-60473-SH and CYFIP1 shRNA (h) Lentiviral Particles: sc-60473-V as alternate gene silencing products.

For independent verification of CYFIP1 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-60473A, sc-60473B and sc-60473C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

CYFIP1 siRNA (h) is recommended for the inhibition of CYFIP1 expression in human cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 µM in 66 µl. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor CYFIP1 gene expression knockdown using RT-PCR Primer: CYFIP1 (h)-PR: sc-60473-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.