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SANTA CRUZ BIOTECHNOLOGY, INC.

Dynamin I siRNA (h): sc-43737

BACKGROUND

Members of the dynamin family, including Dynamin I and Dynamin II, are GTPase, microtubule-associated proteins which are involved in endocytosis, synaptic transmission and neurogenesis. Dynamin I is localized to the central nervous system, while Dynamin II exhibits ubiquitous distribution with highest expression found in testis. Both dynamin proteins contain SH3 and proline-rich domains that mediate interactions between the dynamins and effectors of their GTPase activity. The interactions with these effectors, which include microtubules, acidic phospholipids and SH3 domain-containing proteins, are required for rapid endocytosis. Dynamin I appears to be recruited to clathrin coated pits by SH3 domain interaction with amphiphysin, a protein highly expressed in brain.

REFERENCES

1. Sontag, J.M., et al. 1994. Differential expression and regulation of multiple dynamins. J. Biol. Chem. 269: 4547-4554.
2. Scaife, R., et al. 1994. Grow factor-induced binding of dynamin to signal transduction proteins involves sorting to distinct and separate proline-rich dynamin sequences. EMBO J. 13: 2574-2582.
3. Cook, T.A., et al. 1995. Identification of Dynamin 2, an isoform ubiquitously expressed in rat tissues. Proc. Natl. Acad. Sci. USA 91: 644-648.
4. Shpetner, H.S., et al. 1996. A binding site for SH3 domains targets dynamin to coated pits. J. Biol. Chem. 271: 13-16.
5. Okamoto, P.M., et al. 1997. Role of the basic, proline-rich region of dynamin in Src homology 3 domain binding and endocytosis. J. Biol. Chem. 272: 11629-11635.

CHROMOSOMAL LOCATION

Genetic locus: DNM1 (human) mapping to 9q34.11.

PRODUCT

Dynamin I 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 Dynamin I shRNA Plasmid (h): sc-43737-SH and Dynamin I shRNA (h) Lentiviral Particles: sc-43737-V as alternate gene silencing products.

For independent verification of Dynamin I (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-43737A, sc-43737B and sc-43737C.

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

Dynamin I siRNA (h) is recommended for the inhibition of Dynamin I 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.

GENE EXPRESSION MONITORING

Dynamin I (D5): sc-12724 is recommended as a control antibody for monitoring of Dynamin I gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Dynamin I gene expression knockdown using RT-PCR Primer: Dynamin I (h)-PR: sc-43737-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Konno, M., et al. 2012. Suppression of dynamin GTPase decreases α-synuclein uptake by neuronal and oligodendroglial cells: a potent therapeutic target for synucleinopathy. Mol. Neurodegener. 7: 38.
2. Takahashi, T., et al. 2018. Cathelicidin promotes inflammation by enabling binding of self-RNA to cell surface scavenger receptors. Sci. Rep. 8: 4032.

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.