SANTA CRUZ BIOTECHNOLOGY, INC.

Dynamin III siRNA (m): sc-41209

BACKGROUND

Dynamin III (DNM3, Dyna III, T Dynamin) is a microtubule-associated, force-producing GTPase that can form helical structures around the neck of vesicles. GTP hydrolysis-dependent extension of the helical structure releases the vesicle. Dynamin III contains a pair of phosphorylation sites at Ser 759 and Ser 763. Both 3.0 and 7.2 kb Dynamin III transcripts are detectable in brain. The 3.0 kb Dynamin III transcript is also detectable in testis. The 7.2 kb Dynamin III transcript is brain-specific for a protein thought to influence synaptogenesis in the CNS through recycling, neurotransmitter reuptake and growth factor-receptor signaling, in a thyroid hormone-dependent manner. A 6 kb antisense transcript (Dnm3os) contained within an intron of the mouse Dnm3 gene may be under *trans*-regulation by twist during mouse development. Dynamin III and Dnm3os transcripts overlap during embryogenesis and in adult tissues, except that Dynamin III is abundant in adult brain and testis whereas Dnm3os is abundant in embryos and gravid uterus.

REFERENCES

1. Arnold, A.M., et al. 2003. A novel Dynamin III isoform is up-regulated in the central nervous system in hypothyroidism. Int. J. Dev. Neurosci. 21: 267-275.
2. Nichols, B. 2003. Caveosomes and endocytosis of lipid rafts. J. Cell Sci. 116: 4707-4714.
3. Larsen, M.R., et al. 2004. Improved detection of hydrophilic phosphopeptides using graphite powder microcolumns and mass spectrometry: evidence for *in vivo* doubly phosphorylated Dynamin I and Dynamin III. Mol. Cell. Proteomics 3: 456-465.
4. Rappoport, J.Z., et al. 2004. Understanding living Clathrin-coated pits. Traffic 5: 327-337.
5. Schafer, D.A. 2004. Regulating Actin dynamics at membranes: a focus on Dynamin. Traffic 5: 463-469.
6. Praefcke, G.J., et al. 2004. The Dynamin superfamily: universal membrane tubulation and fission molecules? Nat. Rev. Mol. Cell Biol. 5: 133-147.
7. McNiven, M.A., et al. 2004. The role of Dynamin in the assembly and function of podosomes and invadopodia. Front. Biosci. 9: 1944-1953.

CHROMOSOMAL LOCATION

Genetic locus: Dnm3 (mouse) mapping to 1 H2.1.

PRODUCT

Dynamin III siRNA (m) 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 III shRNA Plasmid (m): sc-41209-SH and Dynamin III shRNA (m) Lentiviral Particles: sc-41209-V as alternate gene silencing products.

For independent verification of Dynamin III (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-41209A, sc-41209B and sc-41209C.

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 III siRNA (m) is recommended for the inhibition of Dynamin III expression in mouse 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 Dynamin III gene expression knockdown using RT-PCR Primer: Dynamin III (m)-PR: sc-41209-PR (20 µl, 556 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Tanifuji, S., et al. 2013. Dynamin isoforms decode action potential firing for synaptic vesicle recycling. J. Biol. Chem. 288: 19050-19059.
2. Hayashida, M., et al. 2015. Neural activity selects myosin IIB and VI with a specific time window in distinct dynamin isoform-mediated synaptic vesicle reuse pathways. J. Neurosci. 35: 8901-8913.

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.