SANTA CRUZ BIOTECHNOLOGY, INC.

CRMP-3 siRNA (m): sc-60448

BACKGROUND

Collapsin response mediator proteins (CRMPs), including CRMP-1 (DRP-1), CRMP-2 (DRP-2 or TOAD64), CRMP-3 (DRP-4), CRMP-4 (DRP-3) and CRMP-5 (DRP-5), mediate signal transduction after exposure of neural cells to the axon guidance molecule Semaphorin 3A (SEMA3A)/collapsin. CRMPs are present in the developing cerebral cortex and neocortical neurons and are responsive to SEMA3A. In the adult brain, the expression of CRMPs is dramatically down-regulated. However, they remain expressed in structures that retain their capacity for differentiation and plasticity. CRMP-3 is expressed transiently in developing spinal cord and selectively in the postnatal cerebellum. It is cleaved by Calpain to produce a p54 N-terminal fragment. This cleavage product translocates to the nucleus and induces neuronal death in response to excitotoxicity and cerebral ischemia.

REFERENCES

1. Wang, L.H., et al. 1996. A family of rat CRMP genes is differentially expressed in the nervous system. J. Neurosci. 16: 6197-6207.
2. Yu, Z., et al. 2001. CRMP-5 neuronal autoantibody: marker of lung cancer and thymoma-related autoimmunity. Ann. Neurol. 49: 146-154.
3. Suzuki, Y., et al. 2003. Collapsin response mediator protein-2 accelerates axon regeneration of nerve-injured motor neurons of rat. J. Neurochem. 86: 1042-1050.
4. Rosslenbroich, V., et al. 2003. Subcellular localization of collapsin response mediator proteins to lipid rafts. Biochem. Biophys. Res. Commun. 305: 392-399.
5. Quach, T.T., et al. 2004. Involvement of collapsin response mediator proteins in the neurite extension induced by neurotrophins in dorsal root ganglion neurons. Mol. Cell. Neurosci. 25: 433-443.
6. Schweitzer, J., et al. 2005. Expression of collapsin response mediator proteins in the nervous system of embryonic zebrafish. Gene Expr. Patterns 5: 809-816.
7. Hou, S.T., et al. 2006. Calpain-cleaved collapsin response mediator protein-3 induces neuronal death after glutamate toxicity and cerebral ischemia. J. Neurosci. 26: 2241-2249.

CHROMOSOMAL LOCATION

Genetic locus: Dpysl4 (mouse) mapping to 7 F4.

PRODUCT

CRMP-3 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 CRMP-3 shRNA Plasmid (m): sc-60448-SH and CRMP-3 shRNA (m) Lentiviral Particles: sc-60448-V as alternate gene silencing products.

For independent verification of CRMP-3 (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-60448A, sc-60448B and sc-60448C.

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

CRMP-3 siRNA (m) is recommended for the inhibition of CRMP-3 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 CRMP-3 gene expression knockdown using RT-PCR Primer: CRMP-3 (m)-PR: sc-60448-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.