SANTA CRUZ BIOTECHNOLOGY, INC.

α-chimaerin siRNA (m): sc-72413

BACKGROUND

The Rac-GAP chimaerin family member α-chimaerin (also known as N-chimaerin or rho GTPase-activating protein 2) has two splice variants: α1 and α2. The α1-chimaerin variant is a neuron-specific, diacylglycerol-binding and GTPase-activating protein for ras-related protein Rac 1. This variant lacks the N-terminal SH2 domain that is present in the α2 variant. By inactivating Rac 1, α1-chimaerin plays a significant role in the regulation of dendritic growth during neuronal development. It is recruited to the plasma membrane by phospholipase Cβ-coupled cell surface receptors activating the downstream generation of DAG (diacylglycerol). Overexpression of α1-chimaerin results in dendritic spine retraction and the loss of dendritic branches. In the presence of reduced neuronal activity, α1-chimaerin expression is down-regulated resulting in an increase in spine growth and dendritic branching.

REFERENCES

1. Dong, J.M., et al. 1995. Promoter region of the transcriptional unit for human α 1-chimaerin, a neuron-specific GTPase-activating protein for p21rac. Eur. J. Biochem. 227: 636-646.
2. Uzzau, S., et al. 2001. Purification and preliminary characterization of the zonula occludens toxin receptor from human (CaCo2) and murine (IEC6) intestinal cell lines. FEMS Microbiol. Lett. 194: 1-5.
3. Hall, C., et al. 2001. α2-chimaerin, a Cdc42/Rac1 regulator, is selectively expressed in the rat embryonic nervous system and is involved in neuritogenesis in N1E-115 neuroblastoma cells. J. Neurosci. 21: 5191-5202.
4. Qi, R. Z., et al. 2004. α-chimaerin exists in a functional complex with the Cdk5 kinase in brain. FEBS Lett. 561: 177-180.
5. Mizuno, T., et al. 2004. Chimaerins act downstream from neurotrophins in overcoming the inhibition of neurite outgrowth produced by myelin-associated glycoprotein. J. Neurochem. 91: 395-403.

CHROMOSOMAL LOCATION

Genetic locus: Chn1 (mouse) mapping to 2 C3.

PRODUCT

α-chimaerin 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 α-chimaerin shRNA Plasmid (m): sc-72413-SH and α-chimaerin shRNA (m) Lentiviral Particles: sc-72413-V as alternate gene silencing products.

For independent verification of α-chimaerin (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-72413A, sc-72413B and sc-72413C.

PROTOCOLS

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

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

α-chimaerin siRNA (m) is recommended for the inhibition of α-chimaerin 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.

GENE EXPRESSION MONITORING

α-chimaerin (G-8): sc-365985 is recommended as a control antibody for monitoring of α-chimaerin 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 α-chimaerin gene expression knockdown using RT-PCR Primer: α-chimaerin (m)-PR: sc-72413-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.