SANTA CRUZ BIOTECHNOLOGY, INC.

LRRK1 siRNA (h): sc-89929

BACKGROUND

The phosphorylation and dephosphorylation of proteins on serine and threonine residues is an essential means of regulating a broad range of cellular functions in eukaryotes, including cell division, homeostasis and apoptosis. A group of proteins that are intimately involved in this process are the serine/threonine (Ser/Thr) protein kinases. LRRK1 (leucine-rich repeat serine/threonine-protein kinase 1), also known as RIPK6, Roco1 or KIAA1790, is a 2,038 amino acid cytoplasmic protein that contains one protein kinase domain, 4 ANK repeats and 11 leucine-rich repeats and belongs to the Ser/Thr protein kinase family. Using magnesium as a cofactor, LRRK1 catalyzes the ATP-dependent phosphorylation of target proteins. The gene encoding LRRK1, which is expressed as four alternatively spliced isoforms, is thought to be involved in the pathogenesis of Parkinson's disease.

REFERENCES

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2. Korr, D., et al. 2006. LRRK1 protein kinase activity is stimulated upon binding of GTP to its Roc domain. Cell. Signal. 18: 910-920.
3. Greggio, E., et al. 2007. Mutations in LRRK2/dardarin associated with Parkinson disease are more toxic than equivalent mutations in the homologous kinase LRRK1. J. Neurochem. 102: 93-102.
4. Taylor, J.P., et al. 2007. Leucine-rich repeat kinase 1: a paralog of LRRK2 and a candidate gene for Parkinson's disease. Neurogenetics 8: 95-102.
5. Marín, I. 2008. Ancient origin of the Parkinson disease gene LRRK2. J. Mol. Evol. 67: 41-50.
6. Wolozin, B., et al. 2008. Investigating convergent actions of genes linked to familial Parkinson's disease. Neurodegener. Dis. 5: 182-185.
7. Westerlund, M., et al. 2008. Developmental regulation of leucine-rich repeat kinase 1 and 2 expression in the brain and other rodent and human organs: Implications for Parkinson's disease. Neuroscience 152: 429-436.

CHROMOSOMAL LOCATION

Genetic locus: LRRK1 (human) mapping to 15q26.3.

PRODUCT

LRRK1 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 LRRK1 shRNA Plasmid (h): sc-89929-SH and LRRK1 shRNA (h) Lentiviral Particles: sc-89929-V as alternate gene silencing products.

For independent verification of LRRK1 (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-89929A, sc-89929B and sc-89929C.

RESEARCH USE

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

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

LRRK1 siRNA (h) is recommended for the inhibition of LRRK1 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 LRRK1 gene expression knockdown using RT-PCR Primer: LRRK1 (h)-PR: sc-89929-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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