SANTA CRUZ BIOTECHNOLOGY, INC.

Parkin siRNA (m): sc-42159

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The Power to Question

BACKGROUND

Parkin is a zinc-finger protein that is related to ubiquitin at the amino terminus. The wild type Parkin gene, which maps to human chromosome 6q26, encodes a 465 amino acid full-length protein that is expressed as multiple isoforms. Mutations in the Parkin gene are responsible for autosomal recessive juvenile Parkinson's disease and commonly involve deletions of exons 3-5. In humans, Parkin is expressed in a subset of cells of the basal ganglia, midbrain, cerebellum and cerebral cortex, and is subject to alternative splicing in different tissues. Parkin expression is also high in the brainstem of mice, with the majority of immunopositive cells being neurons. The Parkin gene has been identified in a diverse group of organisms including mammals, birds, frog and fruit flies, suggesting that analogous functional roles of the Parkin protein may have been highly conserved during the course of evolution.

CHROMOSOMAL LOCATION

Genetic locus: Park2 (mouse) mapping to 17 A1.

PRODUCT

Parkin 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 Parkin shRNA Plasmid (m): sc-42159-SH and Parkin shRNA (m) Lentiviral Particles: sc-42159-V as alternate gene silencing products.

For independent verification of Parkin (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-42159A, sc-42159B and sc-42159C.

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

Parkin siRNA (m) is recommended for the inhibition of Parkin 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

Parkin (PRK8): sc-32282 is recommended as a control antibody for monitoring of Parkin 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Parkin gene expression knockdown using RT-PCR Primer: Parkin (m)-PR: sc-42159-PR (20 µl, 541 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

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4. Qiu, Y.N., et al. 2019. PM2.5 induces liver fibrosis via triggering Ros-mediated mitophagy. Ecotoxicol. Environ. Saf. 167: 178-187.
5. Wang, J., et al. 2019. Fundc1-dependent mitophagy is obligatory to ischemic preconditioning-conferred renoprotection in ischemic AKI via suppression of Drp1-mediated mitochondrial fission. Redox Biol. 30: 101415.
6. Lee, J., et al. 2019. Mitofusin 2-deficiency suppresses *Mycobacterium tuberculosis* survival in macrophages. Cells 8: 1355.
7. Gao, L.P., et al. 2020. Enhanced mitophagy activity in prion infected cultured cells and prion infected experimental mice via Pink1/Parkin dependent mitophagy pathway. ACS Chem. Neurosci. 11: 814-829.
8. Chen, K., et al. 2020. Parkin ubiquitinates GATA4 and attenuates the GATA4/GAS1 signaling and detrimental effects on diabetic nephropathy. FASEB J. 34: 8858-8875.
9. Wu, H., et al. 2020. TIM-4 interference in Kupffer cells against CCL4-induced liver fibrosis by mediating Akt1/Mitophagy signalling pathway. Cell Prolif. 53: e12731.
10. Sakai, T., et al. 2021. Effects of the cytoplasm and mitochondrial specific hydroxyl radical scavengers TA293 and mitoTA293 in bleomycin-induced pulmonary fibrosis model mice. Antioxidants 10: 1398.
11. Cho, S.I., et al. 2022. Urolithin A attenuates auditory cell senescence by activating mitophagy. Sci. Rep. 12: 7704.

RESEARCH USE

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