SANTA CRUZ BIOTECHNOLOGY, INC.

Grim19 siRNA (h): sc-60765

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The Power to Question

BACKGROUND

The Grim family of proteins appear to be novel types of tumor suppressors. Grim19, which stands for gene associated with retinoic-interferon-induced mortality 19 protein, is also designated as cell death-regulatory protein Grim19 or NADH dehydrogenase ubiquinone 1 α subcomplex subunit 13. The Grim19 protein plays two roles within the cell. As a member of the interferon-β and retinoic acid-induced pathway of cell death, Grim19 induces apoptosis. As part of the mitochondrial complex I, Grim19 is essential for its assembly and electron transfer activity. It transfers electrons to the respiratory chain from NADH and plays a role in the interferon/all-*trans*-retinoic acid (IFN/RA) cell death pathway. It localizes primarily to the mitochondrion, but may translocate to the nucleus upon IFN/RA treatment. Grim19 may also be useful as a biological marker or target for drug development.

REFERENCES

1. Brzustowicz, L.M., et al. 1992. Fine-mapping of the spinal muscular atrophy locus to a region flanked by MAP1B and D5S6. Genomics 13: 991-998.
2. Angell, J.E., et al. 2000. Identification of Grim19, a novel cell death-regulatory gene induced by the interferon-β and retinoic acid combination, using a genetic approach. J. Biol. Chem. 275: 33416-33426.
3. Zhang, J., et al. 2003. The cell death regulator Grim19 is an inhibitor of signal transducer and activator of transcription 3. Proc. Natl. Acad. Sci. USA 100: 9342-9347.
4. Lufei, C., et al. 2003. Grim19, a death-regulatory gene product, suppresses Stat3 activity via functional interaction. EMBO J. 22: 1325-1335.

CHROMOSOMAL LOCATION

Genetic locus: NDUFA13 (human) mapping to 19p13.11.

PRODUCT

Grim19 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 Grim19 shRNA Plasmid (h): sc-60765-SH and Grim19 shRNA (h) Lentiviral Particles: sc-60765-V as alternate gene silencing products.

For independent verification of Grim19 (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-60765A, sc-60765B and sc-60765C.

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

Grim19 siRNA (h) is recommended for the inhibition of Grim19 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.

GENE EXPRESSION MONITORING

Grim19 (F-10): sc-365978 is recommended as a control antibody for monitoring of Grim19 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 Grim19 gene expression knockdown using RT-PCR Primer: Grim19 (h)-PR: sc-60765-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Wu, N., et al. 2017. Grim19 represses the proliferation and invasion of cutaneous squamous cell carcinoma cells associated with downregulation of STAT3 signaling. Biomed. Pharmacother. 95: 1169-1176.
2. Hou, W.L., et al. 2018. Inhibition of mitochondrial complex I improves glucose metabolism independently of AMPK activation. J. Cell. Mol. Med. 22: 1316-1328.
3. Hyun, M., et al. 2023. Melatonin protects against cadmium-induced oxidative stress via mitochondrial Stat3 signaling in human prostate stromal cells. Commun. Biol. 6: 157.

RESEARCH USE

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