SANTA CRUZ BIOTECHNOLOGY, INC.

DR5 siRNA (h): sc-40237

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The Power to Question

BACKGROUND

Tumor necrosis factor (TNF) is a pleiotropic cytokine whose function is mediated by two distinct cell surface receptors, designated TNF-R1 and TNF-R2, which are expressed on most cell types. TNF function is primarily mediated through TNF-R1 signaling. Both receptors belong to the growing TNF receptor superfamily which includes FAS antigen and CD40. TNF-R1 contains a cytoplasmic motif, termed the "death domain", that has been found to be necessary for the transduction of the apoptotic signal. The death domain is also found in several other receptors, including FAS, DR2 (or TRUNDD), DR3 (death receptor 3), DR4 and DR5. TRUNDD, DR4 and DR5 are receptors for the apoptosis-inducing cytokine TRAIL. A non-death domain-containing receptor, designated decoy receptor (DcR1 or TRID), also specifically associates with TRAIL and may play a role in cellular resistance to apoptotic stimuli.

CHROMOSOMAL LOCATION

Genetic locus: TNFRSF10B (human) mapping to 8p21.3.

PRODUCT

DR5 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 DR5 shRNA Plasmid (h): sc-40237-SH and DR5 shRNA (h) Lentiviral Particles: sc-40237-V as alternate gene silencing products.

For independent verification of DR5 (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-40237A, sc-40237B and sc-40237C.

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

DR5 siRNA (h) is recommended for the inhibition of DR5 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

DR5 (D-6): sc-166624 is recommended as a control antibody for monitoring of DR5 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 DR5 gene expression knockdown using RT-PCR Primer: DR5 (h)-PR: sc-40237-PR (20 µl, 582 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Wang, Y.C., et al. 2008. Targeting endoplasmic reticulum stress and Akt with OSU-03012 and gefitinib or erlotinib to overcome resistance to epidermal growth factor receptor inhibitors. Cancer Res. 68: 2820-2830.
2. Kuo, P.L., et al. 2008. Involvement of reactive oxygen species/c-Jun NH_2-terminal kinase pathway in kotomolide A induces apoptosis in human breast cancer cells. Toxicol. Appl. Pharmacol. 229: 215-226.
3. Lee, D.H., et al. 2014. Digitoxin sensitizes glioma cells to TRAIL-mediated apoptosis by upregulation of death receptor 5 and downregulation of survivin. Anticancer Drugs 25: 44-52.
4. Oh, Y., et al. 2015. Delivery of tumor-homing TRAIL sensitizer with long-acting TRAIL as a therapy for TRAIL-resistant tumors. J. Control. Release 220: 671-681.
5. Hou, L., et al. 2015. Effect of vitamin E succinate on the expression of the tumor necrosis factor-related apoptosis-inducing ligand (TRAIL) receptor in gastric cancer cells and $CD4^+$ T cells. Mol. Biosyst. 11: 3119-3128.
6. Das, S., et al. 2017. TRAIL enhances quinacrine-mediated apoptosis in breast cancer cells through induction of autophagy via modulation of p21 and DR5 interactions. Cell. Oncol. 40: 593-607.
7. Das, S., et al. 2017. Etoposide and doxorubicin enhance the sensitivity of triple negative breast cancers through modulation of TRAIL-DR5 axis. Apoptosis 22: 1205-1224.
8. Hernandez-Borrero, L.J., et al. 2017. CB002, a novel p53 tumor suppressor pathway-restoring small molecule induces tumor cell death through the pro-apoptotic protein NOXA. Cell Cycle 17: 557-567.
9. Lee, Y.S., et al. 2019. Ferroptosis-inducing agents enhance TRAIL-induced apoptosis through upregulation of death receptor 5. J. Cell. Biochem. 120: 928-939.
10. Park, J.S., et al. 2019. Targeting of dermal myofibroblasts through death receptor 5 arrests fibrosis in mouse models of scleroderma. Nat. Commun. 10: 1128.

RESEARCH USE

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