SANTA CRUZ BIOTECHNOLOGY, INC.

E2F-1 siRNA (h): sc-29297

BACKGROUND

The human retinoblastoma gene product appears to play an important role in the negative regulation of cell proliferation. Functional inactivation of Rb can be mediated either through mutation or as a consequence of interaction with DNA tumor virus-encoded proteins. Of all the Rb associations described to date, the identification of a complex between Rb and the transcription factor E2F most directly implicates Rb in regulation of cell proliferation. E2F was originally identified through its role in transcriptional activation of the adenovirus E2 promoter. Sequences homologous to the E2F binding site have been found upstream of a number of genes that encode proteins with putative functions in the G_1 and S phases of the cell cycle. E2F-1 is a member of a broader family of transcription regulators including E2F-2, E2F-3, E2F-4, E2F-5, E2F-6 and E2F-7 each of which forms heterodimers with a second protein, DP-1, forming an "active" E2F transcriptional regulatory complex.

CHROMOSOMAL LOCATION

Genetic locus: E2F1 (human) mapping to 20q11.22.

PRODUCT

E2F-1 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 E2F-1 shRNA Plasmid (h): sc-29297-SH and E2F-1 shRNA (h) Lentiviral Particles: sc-29297-V as alternate gene silencing products.

For independent verification of E2F-1 (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-29297A, sc-29297B and sc-29297C.

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

E2F-1 siRNA (h) is recommended for the inhibition of E2F-1 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.

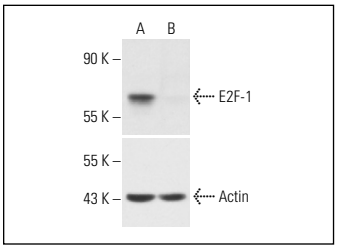
GENE EXPRESSION MONITORING

E2F-1 (KH95): sc-251 is recommended as a control antibody for monitoring of E2F-1 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 E2F-1 gene expression knockdown using RT-PCR Primer: E2F-1 (h)-PR: sc-29297-PR (20 µl, 431 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



E2F-1 siRNA (h): sc-29297. Western blot analysis of E2F-1 expression in non-transfected control (**A**) and E2F-1 siRNA transfected (**B**) HeLa cells. Blot probed with E2F-1 (KH95): sc-251. Actin (I-19): sc-1616 used as specificity and loading control.

SELECT PRODUCT CITATIONS

1. Dasgupta, P., et al. 2006. Nicotine inhibits apoptosis induced by chemotherapeutic drugs by up-regulating XIAP and survivin. Proc. Natl. Acad. Sci. USA 103: 6332-6337.
2. Guo, R., et al. 2010. E2F-1 localizes to sites of UV-induced DNA damage to enhance nucleotide excision repair. J. Biol. Chem. 285: 19308-19315.
3. Real, S., et al. 2011. E2F-1 regulates cellular growth by mTORC1 signaling. PLoS ONE 6: e16163.
4. Rastogi, S., et al. 2012. TNF-α response of vascular endothelial and vascular smooth muscle cells involve differential utilization of ASK1 kinase and p73. Cell Death Differ. 19: 274-283.
5. Lam, S.K., et al. 2014. E2F-1 downregulation by arsenic trioxide in lung adenocarcinoma. Int. J. Oncol. 45: 2033-2043.
6. Lam, S.K., et al. 2015. Downregulation of thymidylate synthase and E2F-1 by arsenic trioxide in mesothelioma. Int. J. Oncol. 46: 113-122.
7. Marampon, F., et al. 2017. HDAC4 and HDAC6 sustain DNA double strand break repair and stem-like phenotype by promoting radioresistance in glioblastoma cells. Cancer Lett. 397: 1-11.
8. Schaal, C.M., et al. 2018. Regulation of Sox-2 and stemness by nicotine and electronic-cigarettes in non-small cell lung cancer. Mol. Cancer 17: 149.

RESEARCH USE

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