SANTA CRUZ BIOTECHNOLOGY, INC.

Nrf3 siRNA (h): sc-38107

BACKGROUND

Nrf3 (nuclear factor (erythroid-derived 2)-like 3, NFE2L3, NF-E2-related factor 3, NRF3) is a transcription factor that influences placental gene expression and development. Nrf3 contains a Cap "n" collar (CNC)-type basic leucine zipper (bZIP) domain and belongs to the CNC gene family. CNC genes play important roles in development, differentiation, oncogenesis and stress signaling. Nrf3 protein is detectable in primary placental cytotrophoblasts. The human choriocarcinoma cell lines BeWo and JAR from trophoblastic tumors of the placenta express Nrf3 transcripts. Nrf3/MafG heterodimers recognize nuclear factor-erythroid 2/Maf recognition element-type DNA-binding motifs. Keratinocyte growth factor (KGF)-regulates Nrf3-dependent gene expression during cutaneous wound repair.

REFERENCES

1. Kobayashi, A., et al. 1999. Molecular cloning and functional characterization of a new Cap "n" collar family transcription factor Nrf3. J. Biol. Chem. 274: 6443-6452.
2. Terui, K., et al. 2000. Expression of transcription factors during megakaryocytic differentiation of $CD34^+$ cells from human cord blood induced by thrombopoietin. Tohoku J. Exp. Med. 192: 259-273.
3. Braun, S., et al. 2002. Nrf2 transcription factor, a novel target of keratinocyte growth factor action which regulates gene expression and inflammation in the healing skin wound. Mol. Cell. Biol. 22: 5492-5505.
4. Kuppers, R., et al. 2003. Identification of Hodgkin and Reed-Sternberg cell-specific genes by gene expression profiling. J. Clin. Invest. 111: 529-537.
5. Derjuga, A., et al. 2004. Complexity of CNC transcription factors as revealed by gene targeting of the Nrf3 locus. Mol. Cell. Biol. 24: 3286-3294.
6. Funatsu, N., et al. 2004. Gene expression analysis of the late embryonic mouse cerebral cortex using DNA microarray: identification of several region- and layer-specific genes. Cereb. Cortex 14: 1031-1044.
7. Chenais, B., et al. 2005. Functional and placental expression analysis of the human NRF3 transcription factor. Mol. Endocrinol. 19: 125-137.

CHROMOSOMAL LOCATION

Genetic locus: NFE2L3 (human) mapping to 7p15.2.

PRODUCT

Nrf3 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 Nrf3 shRNA Plasmid (h): sc-38107-SH and Nrf3 shRNA (h) Lentiviral Particles: sc-38107-V as alternate gene silencing products.

For independent verification of Nrf3 (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-38107A, sc-38107B and sc-38107C.

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

Nrf3 siRNA (h) is recommended for the inhibition of Nrf3 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 Nrf3 gene expression knockdown using RT-PCR Primer: Nrf3 (h)-PR: sc-38107-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. Chatterjee, A., et al. 2014. Natural antioxidants exhibit chemopreventive characteristics through the regulation of CNC b-Zip transcription factors in estrogen-induced breast carcinogenesis. J. Biochem. Mol. Toxicol. 28: 529-538.

RESEARCH USE

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

PROTOCOLS

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