

REDD-2 siRNA (m): sc-152789

BACKGROUND

REDD-2 (regulated in development and DNA damage response 2), also designated Rtp801L or DDIT4L (DNA-damage-inducible transcript 4-like), is a 193 amino acid cytoplasmic protein belonging to the DDIT4 family and is predominantly expressed in skeletal muscle. Considered a stress-induced protein, REDD-2 is a negative regulator of the mTOR (mammalian target of rapamycin) pathway. mTOR is a serine/threonine kinase that plays an essential role in cell growth control and is an important regulator of skeletal muscle size. Highly expressed in human atherosclerotic lesions and macrophages, REDD-2 mediates monocyte cell death through reduction of Trx (thioredoxin-1) expression. REDD2 expression in macrophages increases oxidized LDL (oxLDL)-induced cell death, suggesting that REDD2 may play a critical role in arterial pathology.

REFERENCES

1. Cuaz-Pérolin, C., et al. 2004. REDD2 gene is upregulated by modified LDL or hypoxia and mediates human macrophage cell death. *Arterioscler. Thromb. Vasc. Biol.* 24: 1830-1835.
2. Brafman, A., et al. 2004. Inhibition of oxygen-induced retinopathy in RTP801-deficient mice. *Invest. Ophthalmol. Vis. Sci.* 45: 3796-3805.
3. Corradetti, M.N., et al. 2005. The stress-induced proteins RTP801 and RTP801L are negative regulators of the mammalian target of rapamycin pathway. *J. Biol. Chem.* 280: 9769-9772.
4. Furuta, J., et al. 2006. Silencing of Peroxiredoxin 2 and aberrant methylation of 33 CpG islands in putative promoter regions in human malignant melanomas. *Cancer Res.* 66: 6080-6086.
5. Malagelada, C., et al. 2006. RTP801 is elevated in Parkinson brain substantia nigral neurons and mediates death in cellular models of Parkinson's disease by a mechanism involving mammalian target of rapamycin inactivation. *J. Neurosci.* 26: 9996-10005.
6. Abe, M., et al. 2008. Identification of genes targeted by CpG island methylator phenotype in neuroblastomas, and their possible integrative involvement in poor prognosis. *Oncology* 74: 50-60.
7. Miyazaki, M. and Esser, K.A. 2009. REDD2 is enriched in skeletal muscle and inhibits mTOR signaling in response to leucine and stretch. *Am. J. Physiol., Cell Physiol.* 296: C583-C592.
8. Imen, J.S., et al. 2009. The regulated in development and DNA damage response 2 (REDD2) gene mediates human monocyte cell death through a reduction in thioredoxin-1 expression. *Free Radic. Biol. Med.* 46: 1404-1410.
9. Koga, Y., et al. 2009. Genome-wide screen of promoter methylation identifies novel markers in melanoma. *Genome Res.* 19: 1462-1470.

CHROMOSOMAL LOCATION

Genetic locus: Ddit4l (mouse) mapping to 3 G3.

PROTOCOLS

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

PRODUCT

REDD-2 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see REDD-2 shRNA Plasmid (m): sc-152789-SH and REDD-2 shRNA (m) Lentiviral Particles: sc-152789-V as alternate gene silencing products.

For independent verification of REDD-2 (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-152789A, sc-152789B and sc-152789C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

REDD-2 siRNA (m) is recommended for the inhibition of REDD-2 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 μ M in 66 μ l. 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 REDD-2 gene expression knockdown using RT-PCR Primer: REDD-2 (m)-PR: sc-152789-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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