



FACE-1 siRNA (h): sc-45524

BACKGROUND

FACE-1, or zinc metalloproteinase Ste24 homolog (Zmpste24), is a metalloproteinase responsible for cleaving prelamin A to Lamin A, a component of the nuclear envelope. An integral membrane protein, FACE-1 is widely expressed in tissues throughout the human body and uses zinc as a cofactor, with one zinc ion per subunit. Mutations in the FACE-1 gene are linked to laminopathies in humans, including restrictive dermopathy (RD) and mandibuloacral dysplasia (MAD), both characterized by severe developmental abnormalities and in the case of RD, early neonatal death. Accumulation of unprocessed prelamin A may be responsible for deficits associated with these genetic disorders.

REFERENCES

- Freije, J.M., et al. 1999. Identification and chromosomal location of two human genes encoding enzymes potentially involved in proteolytic maturation of farnesylated proteins. *Genomics* 58: 270-280.
- Pendas, A.M., et al. 2002. Defective prelamin A processing and muscular and adipocyte alterations in Zmpste24 metalloproteinase-deficient mice. *Nat. Genet.* 31: 94-99.
- Agarwal, A.K., et al. 2003. Zinc metalloproteinase, Zmpste24, is mutated in mandibuloacral dysplasia. *Hum. Mol. Genet.* 12: 1995-2001.
- Navarro, C.L., et al. 2004. Lamin A and Zmpste24 (FACE-1) defects cause nuclear disorganization and identify restrictive dermopathy as a lethal neonatal laminopathy. *Hum. Mol. Genet.* 13: 2493-2503.
- Varela, I., et al. 2005. Accelerated ageing in mice deficient in Zmpste24 protease is linked to p53 signalling activation. *Nature* 437: 564-568.
- Navarro, C.L., et al. 2005. Loss of Zmpste24 (FACE-1) causes autosomal recessive restrictive dermopathy and accumulation of Lamin A precursors. *Hum. Mol. Genet.* 14: 1503-1513.
- Gruber, J., et al. 2005. RNAi of FACE-1 protease results in growth inhibition of human cells expressing Lamin A: implications for Hutchinson-Gilford progeria syndrome. *J. Cell Sci.* 118: 689-696.

CHROMOSOMAL LOCATION

Genetic locus: ZMPSTE24 (human) mapping to 1p34.2.

PRODUCT

FACE-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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see FACE-1 shRNA Plasmid (h): sc-45524-SH and FACE-1 shRNA (h) Lentiviral Particles: sc-45524-V as alternate gene silencing products.

For independent verification of FACE-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-45524A, sc-45524B and sc-45524C.

RESEARCH USE

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

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

FACE-1 siRNA (h) is recommended for the inhibition of FACE-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 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 FACE-1 gene expression knockdown using RT-PCR Primer: FACE-1 (h)-PR: sc-45524-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

- Afonso, P., et al. 2016. LMNA mutations resulting in lipodystrophy and HIV protease inhibitors trigger vascular smooth muscle cell senescence and calcification: role of ZMPSTE24 downregulation. *Atherosclerosis* 245: 200-211.

PROTOCOLS

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