

HERP siRNA (h): sc-75245

BACKGROUND

The endoplasmic reticulum (ER) stress response is triggered by the accumulation of unfolded proteins within the ER and is characterized by three events: the inhibition of translation (to prevent further protein accumulation), the up-regulated expression of polypeptide-folding proteins (known as the unfolded protein response, or UPR) and the degradation of misfolded proteins by the ER-associated protein degradation (ERAD) system. HERP, also known as HERPUD1 (homocysteine-inducible, endoplasmic reticulum stress-inducible, ubiquitin-like domain member 1), SUP or MIF1, is a 391 amino acid multi-pass membrane protein that localizes to the ER and contains one N-terminal ubiquitin-like domain. Widely expressed with highest expression in the brain, HERP is a component of the ERAD system and, via its ubiquitin-like domain, is thought to be involved in the destruction of misfolded proteins. Three isoforms of HERP exist due to alternative splicing events.

REFERENCES

1. van Laar, T., et al. 2000. The novel MMS-inducible gene Mif1/KIAA0025 is a target of the unfolded protein response pathway. *FEBS Lett.* 469: 123-131.
2. Kokame, K., et al. 2000. HERP, a new ubiquitin-like membrane protein induced by endoplasmic reticulum stress. *J. Biol. Chem.* 275: 32846-32853.
3. Kokame, K., et al. 2001. Identification of ERSE-II, a new *cis*-acting element responsible for the ATF-6-dependent mammalian unfolded protein response. *J. Biol. Chem.* 276: 9199-9205.
4. Sai, X., et al. 2002. Endoplasmic reticulum stress-inducible protein, HERP, enhances presenilin-mediated generation of Amyloid β -protein. *J. Biol. Chem.* 277: 12915-12920.

CHROMOSOMAL LOCATION

Genetic locus: HERPUD1 (human) mapping to 16q13.

PRODUCT

HERP 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 HERP shRNA Plasmid (h): sc-75245-SH and HERP shRNA (h) Lentiviral Particles: sc-75245-V as alternate gene silencing products.

For independent verification of HERP (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-75245A, sc-75245B and sc-75245C.

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

HERP siRNA (h) is recommended for the inhibition of HERP 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.

GENE EXPRESSION MONITORING

HERP (19-Y): sc-100721 is recommended as a control antibody for monitoring of HERP 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).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz MarkerTM Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor HERP gene expression knockdown using RT-PCR Primer: HERP (h)-PR: sc-75245-PR (20 μ l, 533 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, T., et al. 2017. Enterovirus 71 protease 2A^{pro} and 3C^{pro} differentially inhibit the cellular endoplasmic reticulum-associated degradation (ERAD) pathway via distinct mechanisms, and enterovirus 71 hijacks ERAD component p97 to promote its replication. *PLoS Pathog.* 13: e1006674.

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.