

MIPEP siRNA (h): sc-106225

BACKGROUND

MIPEP (Mitochondrial intermediate peptidase) is a 713 amino acid protein that performs the final step in processing nuclear-encoded proteins that are targeted to the mitochondrial inner membrane or matrix. MIPEP is primarily involved in the maturation of oxidative phosphorylation-related proteins and is accordingly expressed at highest levels in tissues that have high oxygen consumption, such as skeletal muscle, brain, heart and pancreas. Significantly, human MIPEP is the functional homolog of yeast YMIP, a protein that promotes mitochondrial iron uptake and is regulated by the yeast homolog of frataxin, which is required for mitochondrial iron efflux. Due to the likely regulatory effect that human frataxin has on it, MIPEP may be implicated in the clinical manifestations of Friedreich ataxia, an autosomal recessive neurodegenerative disease caused by deficiency of frataxin.

REFERENCES

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2. Chew, A., et al. 1997. Cloning, expression, and chromosomal assignment of the human mitochondrial intermediate peptidase gene (MIPEP). *Genomics* 40: 493-496.
3. Branda, S.S., et al. 1999. Mitochondrial intermediate peptidase and the yeast frataxin homolog together maintain mitochondrial iron homeostasis in *Saccharomyces cerevisiae*. *Hum. Mol. Genet.* 8: 1099-1110.
4. Chew, A., et al. 2000. Functional and genomic analysis of the human mitochondrial intermediate peptidase, a putative protein partner of frataxin. *Genomics* 65: 104-112.
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CHROMOSOMAL LOCATION

Genetic locus: MIPEP (human) mapping to 13q12.12.

PRODUCT

MIPEP 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 MIPEP shRNA Plasmid (h): sc-106225-SH and MIPEP shRNA (h) Lentiviral Particles: sc-106225-V as alternate gene silencing products.

For independent verification of MIPEP (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-106225A, sc-106225B and sc-106225C.

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

MIPEP siRNA (h) is recommended for the inhibition of MIPEP 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

MIPEP (166CT22.3.7): sc-517345 is recommended as a control antibody for monitoring of MIPEP 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 Marker[™] 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 MIPEP gene expression knockdown using RT-PCR Primer: MIPEP (h)-PR: sc-106225-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.

PROTOCOLS

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