

BMCP1 siRNA (m): sc-60276

BACKGROUND

Brain mitochondrial carrier protein 1 (BMCP1), also designated uncoupling protein 5 (UCP5) or solute carrier family 25 member 14 (SLC25A14), is a 325-amino acid, proton channel carrier protein not coupled to oxidative phosphorylation. It is located in the inner membrane of mitochondria and is linked to the generation of heat. Like other UCPs, BMCP1 facilitates the transfer of anions from the inner to the outer mitochondrial membrane as well as the return transfer of protons from the outer to the inner mitochondrial membrane. In addition, BMCP1 reduces the mitochondrial membrane potential in mammalian cells. BMCP1 is mainly expressed in the brain, while weaker expression is seen in the pituitary and testis. It contains 6 transmembrane domains, 3 motifs typical of mitochondrial energy transfer proteins, and 20 amino acids at the N terminus that are absent in UCP1, UCP2, and UCP3. The BMCP1 protein shares 34, 38, and 39% homology with UCP1, UCP2, and UCP3, respectively.

REFERENCES

1. Sanchis, D., et al. 1999. BMCP1, a novel mitochondrial carrier with high expression in the central nervous system of humans and rodents, and respiration uncoupling activity in recombinant yeast. *J. Biol. Chem.* 273: 34611-34615.
2. Yu, X.X., et al. 2000. Characterization of novel UCP5/BMCP1 isoforms and differential regulation of UCP4 and UCP5 expression through dietary or temperature manipulation. *FASEB J.* 14: 1611-1618.
3. Clark, H.F., et al. 2003. The secreted protein discovery initiative (SPDI), a large-scale effort to identify novel human secreted and transmembrane proteins: a bioinformatics assessment. *Genome Res.* 13: 2265-2270.
4. Online Mendelian Inheritance in Man, OMIM[™]. 2003. Johns Hopkins University, Baltimore, MD. MIM Number: 300242. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
5. Haguenuer, A., et al. 2005. A new renal mitochondrial carrier, KMCP1, is up-regulated during tubular cell regeneration and induction of antioxidant enzymes. *J. Biol. Chem.* 280: 22036-22043.
6. Kitahara, T., et al. 2005. Regulation of mitochondrial uncoupling proteins in mouse inner ear ganglion cells in response to systemic kanamycin challenge. *Neuroscience* 135: 639-653.

CHROMOSOMAL LOCATION

Genetic locus: Slc25a14 (mouse) mapping to X A4.

PRODUCT

BMCP1 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 BMCP1 shRNA Plasmid (m): sc-60276-SH and BMCP1 shRNA (m) Lentiviral Particles: sc-60276-V as alternate gene silencing products.

For independent verification of BMCP1 (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-60276A, sc-60276B and sc-60276C.

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

BMCP1 siRNA (m) is recommended for the inhibition of BMCP1 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 BMCP1 gene expression knockdown using RT-PCR Primer: BMCP1 (m)-PR: sc-60276-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.