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encephalopsin siRNA (h): sc-45989

BACKGROUND

Encephalopsin is the first putative extraocular opsin identified in mammals and may play a role in encephalic photoreception. Also designated panopsin, encephalopsin may play a role in non-visual photic processes such as the entrainment of circadian rhythm or the regulation of pineal melatonin production. Encephalopsin shows strong and specific expression in the brain. In the cortex and cerebellum, encephalopsin expression is considerably higher and more highly patterned in the adult than in the neonate. In addition to encephalopsin, other classical visual opsins Rgr-opsin, peropsin and melanopsin are all expressed in fetal development by E11.5, unlike the murine rod and cone opsins that exhibit post-natal expression, such as P1 for ultraviolet cone opsin and P5 for rod opsin.

REFERENCES

1. Blackshaw, S., et al. 1999. Encephalopsin: a novel mammalian extraretinal opsin discretely localized in the brain. *J. Neurosci.* 19: 3681-3690.
2. Kasper, G., et al. 2002. Different structural organization of the encephalopsin gene in man and mouse. *Gene* 295: 27-32.
3. Tarttelin, E.E., et al. 2003. Expression of opsin genes early in ocular development of humans and mice. *Exp. Eye Res.* 76: 393-396.
4. Kumbalasar, T., et al. 2005. Melanopsin and other novel mammalian opsins. *Exp. Eye Res.* 81: 368-375.
5. Terakita, A. 2005. The opsins. *Genome Biol.* 6: 213.

CHROMOSOMAL LOCATION

Genetic locus: OPN3 (human) mapping to 1q43.

PRODUCT

encephalopsin 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 encephalopsin shRNA Plasmid (h): sc-45989-SH and encephalopsin shRNA (h) Lentiviral Particles: sc-45989-V as alternate gene silencing products.

For independent verification of encephalopsin (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-45989A, sc-45989B and sc-45989C.

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

encephalopsin siRNA (h) is recommended for the inhibition of encephalopsin 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 encephalopsin gene expression knockdown using RT-PCR Primer: encephalopsin (h)-PR: sc-45989-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

1. Wu, Q., et al. 2020. Solar light induces the release of acetylcholine from skin keratinocytes affecting melanogenesis. *FASEB J.* E-published.

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.