SANTA CRUZ BIOTECHNOLOGY, INC.

POMC siRNA (m): sc-37278

BACKGROUND

The proopiomelanocortin (POMC) gene is expressed in the pituitary and arcuate neurons of the hypothalamus. POMC arcuate neurons play a central role in the control of energy homeostasis. The POMC precursor hormone undergoes enzymatic cleavage to yield active ligands for melanocortin receptors. These peptides include adrenocorticotropin (ACTH), corticotropin-like intermediate lobe peptide (CLIP), melanotropins (α, β, γ-MSH), lipotropins and endorphins.

REFERENCES

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2. Liu, J., et al. 2001. Tbx19, a tissue-selective regulator of POMC gene expression. Proc. Natl. Acad. Sci. USA 98: 8674-8679.
3. Voisey, J., et al. 2003. Melanocortins and their receptors and antagonists. Curr. Drug Targets 4: 586-597.
4. Pritchard, L.E., et al. 2003. Proopiomelanocortin-derived peptides in rat cerebrospinal fluid and hypothalamic extracts: evidence that secretion is regulated with respect to energy balance. Endocrinology 144: 760-766.
5. Karalis, K.P., et al. 2004. NFκB participates in the corticotropin-releasing, hormone-induced regulation of the pituitary proopiomelanocortin gene. J. Biol. Chem. 279: 10837-10840.
6. Balthasar, N., et al. 2004. Leptin receptor signaling in POMC neurons is required for normal body weight homeostasis. Neuron 42: 983-991.
7. Corre, S., et al. 2004. UV-induced expression of key component of the tanning process, the POMC and MC1R genes, is dependent on the p-38-activated upstream stimulating factor-1 (USF-1). J. Biol. Chem. 279: 51226-51233.
8. Breen, T.L., et al. 2005. Effects of fasting, leptin, and insulin on AGRP and POMC peptide release in the hypothalamus. Brain Res. 1032: 141-148.
9. de Souza, F.S., et al. 2005. Identification of neuronal enhancers of the proopiomelanocortin gene by transgenic mouse analysis and phylogenetic footprinting. Mol. Cell. Biol. 25: 3076-3086.

CHROMOSOMAL LOCATION

Genetic locus: Pomc (mouse) mapping to 12 A1.1.

PRODUCT

POMC 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see POMC shRNA Plasmid (m): sc-37278-SH and POMC shRNA (m) Lentiviral Particles: sc-37278-V as alternate gene silencing products.

For independent verification of POMC (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-37278A, sc-37278B and sc-37278C.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

POMC siRNA (m) is recommended for the inhibition of POMC 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 µM in 66 µl. 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

ACTH/CLIP (F-3): sc-373878 is recommended as a control antibody for monitoring of POMC 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 POMC gene expression knockdown using RT-PCR Primer: POMC (m)-PR: sc-37278-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Souza, G.F., et al. 2016. Defective regulation of POMC precedes hypothalamic inflammation in diet-induced obesity. Sci. Rep. 6: 29290.

RESEARCH USE

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