SANTA CRUZ BIOTECHNOLOGY, INC.

NPY1-R siRNA (h): sc-36097

BACKGROUND

The NPY1R gene, located on human chromosome 4q32.2, encodes a 384 amino acid protein, NPY1-R (also designated Neuropeptide Y receptor Y1). NPY1-R is a member of the G protein-coupled receptor superfamily, and like other members has seven putative transmembrane domains. However, NPY1-R gene consists of three exons, unlike the contiguous structure of other G protein-coupled receptor genes. NPY1-R is expressed in the postsynaptic membrane of spleen, small intestine, kidney, testis, placenta, aortic smooth muscle, and throughout the central nervous system. NPY1-R associates with Neuropeptide Y, un-phosphorylated Peptide YY (PYY) and particularly strongly with phosphorolated PYY. Depending on the cell type, NPY1-R couples with different G proteins, which act as second messengers. NPY1-R activation is necessary and sufficient for the release of substance P, a pain neurotransmitter, and the initiation of neurogenic inflammation. NPY1-R stimulates feeding behaviors, through an interaction with NPY.

REFERENCES

1. Larhammar, K., et al. 1992. Cloning and fuctional expression of a human neuropeptide Y/peptide YY receptor of the Y1 type. J. Biol. Chem. 267: 10935-10938.
2. Herzog, H., et al. 1992. Cloned human neuropeptide Y receptor couples to two different second messenger systems. Proc. Natl. Acad. Sci. USA 89: 5794-5798.
3. Herzog, H., et al. 1993. Genomic organization, localization, and allelic differences in the gene for the human neuropeptide Y Y1 receptor. J. Biol. Chem. 268: 6703-6707.
4. Migita, K., et al. 2001. Immunohistochemical localization of the neuropeptide Y Y1 receptor in rat central nervous system. Brain Res. 889: 23-37.
5. Chen, Z., et al. 2001. Ser^{13}-phophorylated PYY from porcine intestine with a potent biological activity. FEBS Lett. 492: 119-122.
6. Naveilhan, P., et al. 2001. Reduced antinociception and plasma extravasation in mice lacking a neuropeptide Y receptor. Nature 409: 513-517.
7. Kanatani, A., et al. 2001. A typical Y1 receptor regulates feeding behaviours: effects of a potent and selective Y1 antagonist, J-115814. Mol. Pharmacol. 59: 501-505.

CHROMOSOMAL LOCATION

Genetic locus: NPY1R (human) mapping to 4q32.2.

PRODUCT

NPY1-R 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see NPY1-R shRNA Plasmid (h): sc-36097-SH and NPY1-R shRNA (h) Lentiviral Particles: sc-36097-V as alternate gene silencing products.

For independent verification of NPY1-R (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-36097A, sc-36097B and sc-36097C.

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

NPY1-R siRNA (h) is recommended for the inhibition of NPY1-R 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 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

NPY1-R (E-4): sc-393192 is recommended as a control antibody for monitoring of NPY1-R 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 NPY1-R gene expression knockdown using RT-PCR Primer: NPY1-R (h)-PR: sc-36097-PR (20 µl). 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.