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D5DR siRNA (h): sc-41934

BACKGROUND

D5DR (dopamine receptor D5, DR1B, DRD1L2) is a G protein-coupled receptor of the D1-like family that stimulates adenylyl cyclase and has a ten-fold higher affinity for dopamine than the D1 subtype. D5DR is present in neurons in the limbic regions of the brain. D5DR mRNA is most abundant in discrete cortical areas (layers II, IV and VI), the dentate gyrus and hippocampal subfields with low levels in the striatum. There are five major types of dopamine receptors. All are G protein-coupled metabotropic receptors, and can be excitatory or inhibitory to the post-synaptic neuron. D1 (D1A, D1C, D1D) and D5 (D1B) receptors belong to the D1-like receptor family. The D2, D3 and D4 receptors belong to the D2-like receptor family. Activation of the D1-like family receptors couples to increases in cAMP and is typically excitatory, while D2-like activation reduces cAMP and is typically inhibitory. Significant age-related decline in dopamine receptor mRNAs occurs in the hippocampus and entorhinal cortex.

REFERENCES

1. Beischlag, T.V., et al. 1995. The human dopamine D5 receptor gene: cloning and characterization of the 5'-flanking and promoter region. *Biochemistry* 34: 5960-5970.
2. Nguyen-Legros, J., et al. 1999. Dopamine receptor localization in the mammalian retina. *Mol. Neurobiol.* 19: 181-204.
3. Iwaszow, R.M., et al. 1999. Delineation of the structural basis for the activation properties of the dopamine D1 receptor subtypes. *J. Biol. Chem.* 274: 31882-31890.
4. Luedtke, R.R., et al. 1999. Immunoblot and immunohistochemical comparison of murine monoclonal antibodies specific for the rat D1a and D1b dopamine receptor subtypes. *J. Neuroimmunol.* 101: 170-187.

CHROMOSOMAL LOCATION

Genetic locus: DRD5 (human) mapping to 4p16.1.

PRODUCT

D5DR 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 D5DR shRNA Plasmid (h): sc-41934-SH and D5DR shRNA (h) Lentiviral Particles: sc-41934-V as alternate gene silencing products.

For independent verification of D5DR (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-41934A, sc-41934B and sc-41934C.

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

D5DR siRNA (h) is recommended for the inhibition of D5DR 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

D5DR (E-12): sc-376088 is recommended as a control antibody for monitoring of D5DR 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 D5DR gene expression knockdown using RT-PCR Primer: D5DR (h)-PR: sc-41934-PR (20 μ l). Annealing temperature for the primers should be $55-60^{\circ}$ C and the extension temperature should be $68-72^{\circ}$ C.

SELECT PRODUCT CITATIONS

1. Lee, S.I., et al. 2019. Dopamine receptor antagonists induce differentiation of PC-3 human prostate cancer cell-derived cancer stem cell-like cells. *Prostate* 79: 720-731.

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.