SANTA CRUZ BIOTECHNOLOGY, INC.

MOR-1 siRNA (h): sc-35957

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Endogenous opioid peptides and opiates, like morphine, transmit their pharmacological effects through membrane bound opioid receptors. Pharmacological studies and molecular cloning have led to the identification of three different types of opioid receptor, μ-type, δ-type and κ-type, also designated MOR-1, DOR-1 and KOR-1, respectively. MOR-1 is a receptor for β-endorphin, DOR-1 is a receptor for enkephalins, and KOR-1 is a receptor for dynorphins. The three opioid receptor types are highly homologous and belong to the superfamily of G protein-coupled receptors. Opioid receptors have been shown to modulate a range of brain functions, including instinctive behavior and emotions. This regulation is thought to involve the inhibition of neurotransmitter release by reducing calcium ion currents and increasing potassium ion conductance.

REFERENCES

1. Chang, K.J., et al. 1979. Multiple opiate receptors. Enkephalins and morphine bind to receptors of different specificty. J. Biol. Chem. 254: 2610-2618.
2. Cherubini, E., et al. 1985. μ and κ opioids inhibit transmitter release by different mechanisms. Proc. Natl. Acad. Aci. USA 82: 1860-1863.
3. Schoffelmeer, A.N., et al. 1988. μ-, δ- and κ-opioid receptor-mediated inhibition of neurotransmitter release and adenylate cyclase activity in rat brain slices: studies with fentanyl isothiocyanate. Eur. J. Pharmacol. 154: 169-178.
4. Knapp, R.J., et al. 1995. Molecular biology and pharmacology of cloned opioid receptors. FASEB J. 9: 516-525.
5. Satoh, M., et al. 1995. Molecular pharmacology of the opioid receptors. Pharmacol. Ther. 68: 343-364.
6. Minami, M., et al. 1995. Molecular biology of the opioid receptors: structures, functions and distributions. Neurosci. Res. 23: 121-145.
7. Simmons, M.L., et al. 1996. κ-opioid receptor activation of a dendrotoxin-sensitive potassium channel mediates presynaptic inhibition of mossy fiber neurotransmitter release. Mol. Pharmacol. 50: 80-85.
8. Singh, V.K., et al. 1997. Molecular biology of opioid receptors: recent advances. Neuroimmunomodulation 4: 285-297.

CHROMOSOMAL LOCATION

Genetic locus: OPRM1 (human) mapping to 6q25.2.

PRODUCT

MOR-1 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 MOR-1 shRNA Plasmid (h): sc-35957-SH and MOR-1 shRNA (h) Lentiviral Particles: sc-35957-V as alternate gene silencing products.

For independent verification of MOR-1 (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-35957A, sc-35957B and sc-35957C.

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

MOR-1 siRNA (h) is recommended for the inhibition of MOR-1 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

MOR-1 (D-12): sc-515933 is recommended as a control antibody for monitoring of MOR-1 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor MOR-1 gene expression knockdown using RT-PCR Primer: MOR-1 (h)-PR: sc-35957-PR (20 µl, 596 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lu, J., et al. 2013. *In vivo* and *in vitro* inhibition of human liver cancer progress by downregulation of the μ-opioid receptor and relevant mechanisms. Oncol. Rep. 30: 1731-1738.
2. Lennon, F.E., et al. 2014. The μ opioid receptor promotes opioid and growth factor-induced proliferation, migration and epithelial mesenchymal transition (EMT) in human lung cancer. PLoS ONE 9: e91577.

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.