

GABAA R θ siRNA (m): sc-155896

BACKGROUND

γ -aminobutyric acid type A (GABA_A) receptors mediate inhibitory neurotransmission in the mammalian central nervous system. The receptor exists as a pentameric ion channel composed by heteromeric combinations of α , β , γ , δ , ϵ , θ , or π subunits. Only specific subunit combinations produce viable receptors, while others never translocate to the cell surface from the ER where they are synthesized, and subsequently degraded. The theta subunit forms a receptor in combination with α 3 subunits in monoaminergic cell groups. These receptors, found especially in the septum, preoptic areas, hypothalamic nuclei, amygdala and thalamus, likely have unique pharmacological properties linked to their expression in this particular cell type and not cholinergic cell groups, and may play a role in opiate withdrawal symptoms.

REFERENCES

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2. Bonnert, T.P., et al. 1999. θ , a novel γ -aminobutyric acid type A receptor subunit. *Proc. Natl. Acad. Sci. USA* 96: 9891-9896.
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4. Heikkila, A.T., et al. 2001. Morphine withdrawal increases expression of GABA_A receptor epsilon subunit mRNA in locus coeruleus neurons. *Neuroreport* 12: 2981-2985.
5. Moragues, N., et al. 2002. Localisation of GABA_A receptor ϵ -subunit in cholinergic and aminergic neurones and evidence for co-distribution with the θ -subunit in rat brain. *Neuroscience* 111: 657-669.
6. Bollan, K., et al. 2003. Multiple assembly signals in γ -aminobutyric acid (type A) receptor subunits combine to drive receptor construction and composition. *Biochem. Soc. Trans.* 31: 875-879.
7. Hajos, M., et al. 2004. Modulation of septo-hippocampal θ activity by GABA_A receptors: an experimental and computational approach. *Neuroscience* 126: 599-610.

CHROMOSOMAL LOCATION

Genetic locus: Gabrq (mouse) mapping to X A7.3.

PRODUCT

GABAA R θ 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see GABAA R θ shRNA Plasmid (m): sc-155896-SH and GABAA R θ shRNA (m) Lentiviral Particles: sc-155896-V as alternate gene silencing products.

For independent verification of GABAA R θ (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-155896A, sc-155896B and sc-155896C.

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

GABAA R θ siRNA (m) is recommended for the inhibition of GABAA R θ 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 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 GABAA R θ gene expression knockdown using RT-PCR Primer: GABAA R θ (m)-PR: sc-155896-PR (20 μ l). 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.