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Lieferung & Zahlungsart

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- Trockeneiszuschlag
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SANTA CRUZ BIOTECHNOLOGY, INC.

$GABA_A$ Rγ2 siRNA (h): sc-42449

BACKGROUND

GAD-65 and GAD-67, glutamate decarboxylases, function to catalyze the production of GABA (γ-aminobutyric acid). In the central nervous system, GABA functions as the main inhibitory transmitter by increasing a Cl^- (chloride) conductance that inhibits neuronal firing. GABA has been shown to activate both ionotropic ($GABA_A$) and metabotropic ($GABA_B$) receptors, as well as a third class of receptors called $GABA_C$. The γ subunit of $GABA_A$ receptors are important for benzodiazepine binding and modulation of GABA-mediated Cl^- current. $GABA_A$ Rγ2 is a 467 amino acid mulit-pass membrane protein localized to the postsynaptic cell membrane. Present as a pentamer with other $GABA_A$ receptor chains (α, β, γ, δ and ρ), the $GABA_A$ ligand-gated Cl^- channels selectively complex with D5DR to enable mutual inhibitory functional interactions between the two receptor systems. Defects in the gene encoding $GABA_A$ Rγ2 have been found to be the cause of childhood absence epilepsy type 2, familial febrile convulsions type 8, generalized epilepsy with febrile seizures plus type 3 and severe myoclonic epilepsy in infancy.

REFERENCES

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2. Wang, H., et al. 1999. $GABA_A$-receptor-associated protein links $GABA_A$ receptors and the cyto-skeleton. Nature 397: 69-72.
3. Kucken, A.M., et al. 2000. Identification of benzodiazepine binding site residues in the γ2 subunit of the $GABA_A$ receptor. Mol. Pharmacol. 57: 932-939.
4. Liu, F., et al. 2000. Direct protein-protein coupling enables cross-talk between dopamine D5 and $GABA_A$ receptors. Nature 403: 274-280.
5. Baulac, S., et al. 2001. First genetic evidence of $GABA_A$ receptor dysfunction in epilepsy: a mutation in the γ2 subunit gene. Nat. Genet. 28: 46-48.
6. Kananura, C., et al. 2002. A splice-site mutation in GABRG2 associated with childhood absence epilepsy and febrile convulsions. Arch. Neurol. 59: 1137-1141.
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CHROMOSOMAL LOCATION

Genetic locus: GABRG2 (human) mapping to 5q34.

PRODUCT

$GABA_A$ Rγ2 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 $GABA_A$ Rγ2 shRNA Plasmid (h): sc-42449-SH and $GABA_A$ Rγ2 shRNA (h) Lentiviral Particles: sc-42449-V as alternate gene silencing products.

For independent verification of $GABA_A$ Rγ2 (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-42449A, sc-42449B and sc-42449C.

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

$GABA_A$ Rγ2 siRNA (h) is recommended for the inhibition of $GABA_A$ Rγ2 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor $GABA_A$ Rγ2 gene expression knockdown using RT-PCR Primer: $GABA_A$ Rγ2 (h)-PR: sc-42449-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.