SANTA CRUZ BIOTECHNOLOGY, INC.

CB1 siRNA (h): sc-39910

BACKGROUND

The cannabinoid receptors (CB1 and CB2) are G protein-coupled receptors that inhibit adenylate cyclase activity in response to psychoactive cannabinoids. CB1 is expressed in brain tissue and, in low levels, in testis. CB2 has been shown to be expressed only by cells of the immune system, specifically by HL-60 cells. The cannabinoid receptors mediate most of the cannabinoid-induced responses in a dose-dependent, stereoselective manner. Phosphorylation of CB1 on serine 316 leads to a disruption of CB1-mediated inhibition of calcium channels and activation of potassium currents. This response system is thought to be involved in specific brain functions, such as nociception, control of movement, memory, and neuroendocrine regulation as well as having a possible role in brain development. In addition, CB1 may mediate the addictive behavior involved with the use of psychoactive cannabinoids, such as THC in marijuana.

REFERENCES

1. Matsuda, L.A., et al. 1990. Structure of a cannabinoid receptor and functional expression of the cloned cDNA. Nature 346: 561-564.
2. Gerard, C.M., et al. 1991. Molecular cloning of a human cannabinoid receptor which is also expressed in testis. Biochem. J. 179: 129-134.
3. Munro, S., et al. 1993. Molecular characterization of a peripheral receptor for cannabinoids. Nature 365: 61-65.

CHROMOSOMAL LOCATION

Genetic locus: CNR1 (human) mapping to 6q15.

PRODUCT

CB1 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 CB1 shRNA Plasmid (h): sc-39910-SH and CB1 shRNA (h) Lentiviral Particles: sc-39910-V as alternate gene silencing products.

For independent verification of CB1 (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-39910A, sc-39910B and sc-39910C.

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

CB1 siRNA (h) is recommended for the inhibition of CB1 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

CB1 (2F9): sc-293419 is recommended as a control antibody for monitoring of CB1 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 CB1 gene expression knockdown using RT-PCR Primer: CB1 (h)-PR: sc-39910-PR (20 µl, 537 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Rozenfeld, R., et al. 2011. AT1R-CB_1R heteromerization reveals a new mechanism for the pathogenic properties of Angiotensin II. EMBO J. 30: 2350-2363.
2. Sugawara, K., et al. 2012. Endocannabinoids limit excessive mast cell maturation and activation in human skin. J. Allergy Clin. Immunol. 129: 726-738.e8.
3. Sugawara, K., et al. 2013. Cannabinoid receptor 1 controls human mucosal-type mast cell degranulation and maturation *in situ*. J. Allergy Clin. Immunol. 132: 182-193.
4. Paul, R.K., et al. 2014. (R,R')-4'-methoxy-1-naphthylfenoterol targets GPR55-mediated ligand internalization and impairs cancer cell motility. Biochem. Pharmacol. 87: 547-561.
5. Zhang, Z., et al. 2017. Inhibitory effect of *trans*-caryophyllene (TC) on leukocyte-endothelial attachment. Toxicol. Appl. Pharmacol. 329: 326-333.
6. Swinton, M.K., et al. 2019. Mitochondrial biogenesis is altered in HIV^+ brains exposed to ART: implications for therapeutic targeting of astroglia. Neurobiol. Dis. 130: 104502.
7. Sugawara, K., et al. 2021. Human epithelial stem cell survival within their niche requires "tonic" cannabinoid receptor 1-signalling-Lessons from the hair follicle. Exp. Dermatol. 30: 479-493.

RESEARCH USE

For research use only, not for use in diagnostic procedures.