SANTA CRUZ BIOTECHNOLOGY, INC.

Adenosine A1-R siRNA (h): sc-39848

BACKGROUND

Adenosine is involved in a variety of processes, including the synthesis of urea, the anti-inflammatory response, and the inhibition of protein synthesis. The Adenosine receptors, including Adenosine A1-R, Adenosine A2A-R, Adenosine A2B-R and Adenosine A3-R, are integral membrane proteins that are members of the G protein-coupled receptor family. Adenosine A1-R mediates ureagenesis in a partially calcium-dependent manner. Adenosine is known to mediate coronary vasodilation via Adenosine A2A-R. Collagen synthesis and total protein synthesis are inhibited in certain cells by Adenosine, acting via the A2B receptors. Activation of Adenosine A3-R inhibits the induction of TNFα and blocks the endotoxin CD14 receptor signal transduction pathway.

REFERENCES

1. Mahan, L.C., et al. 1991. Cloning and expression of an A_1 adenosine receptor from rat brain. Mol. Pharmacol. 40: 1-7.
2. Furlong, T.J., et al. 1992. Molecular characterization of a human brain adenosine A_2 receptor. Brain Res. Mol. Brain Res. 15: 62-66.
3. Pierce, K.D., et al. 1992. Molecular cloning and expression of an adenosine A_{2b} receptor from human brain. Biochem. Biophys. Res. Commun. 187: 86-93.
4. Salvatore, C.A., et al. 1993. Molecular cloning and characterization of the human A_3 adenosine receptor. Proc. Natl. Acad. Sci. USA 90: 10365-10369.

CHROMOSOMAL LOCATION

Genetic locus: ADORA1 (human) mapping to 1q32.1.

PRODUCT

Adenosine A1-R 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 Adenosine A1-R shRNA Plasmid (h): sc-39848-SH and Adenosine A1-R shRNA (h) Lentiviral Particles: sc-39848-V as alternate gene silencing products.

For independent verification of Adenosine A1-R (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-39848A, sc-39848B and sc-39848C.

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

Adenosine A1-R siRNA (h) is recommended for the inhibition of Adenosine A1-R 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

Adenosine A1-R (D-5): sc-514337 is recommended as a control antibody for monitoring of Adenosine A1-R 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 Adenosine A1-R gene expression knockdown using RT-PCR Primer: Adenosine A1-R (h)-PR: sc-39848-PR (20 µl, 549 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Kan, Y., et al. 2012. Imiquimod suppresses propagation of herpes simplex virus 1 by upregulation of cystatin A via the Adenosine receptor A_1 pathway. J. Virol. 86: 10338-10346.
2. Burke, T.M., et al. 2015. Effects of caffeine on the human circadian clock *in vivo* and *in vitro*. Sci. Transl. Med. 7: 305ra146.
3. Guzmán-Gutiérrez, E., et al. 2016. Insulin requires A_1 adenosine receptors expression to reverse gestational diabetes-increased L-arginine transport in human umbilical vein endothelium. Purinergic Signal. 12: 175-190.

RESEARCH USE

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