SANTA CRUZ BIOTECHNOLOGY, INC.

CAR1/2 siRNA (m): sc-43663

BACKGROUND

The CAR (constitutively acting receptor) proteins, CAR1 and CAR2, are mouse nuclear hormone receptors. CAR1 and CAR2, along with their human homolog, MB67, are in highest expression in the liver and belong to a group of receptors known as orphan receptors due to their lack of a known ligand. Unlike conventional hormone receptors which activate transcription upon binding with steroids, retinoids and thyroid hormones, the CAR and MB67 orphan receptors are transcriptionally active in the absence of exogenous hormone. The CAR and MB67 orphan receptors bind to DNA in the form of a heterodimer with the retinoic-X receptor and activate gene transcription in a constituitive manner.

REFERENCES

1. Davies, P., et al. 1988. The structure and function of steroid receptors. Sci. Prog. 72: 563-578.
2. Baes, M., et al. 1994. A new orphan member of the nuclear hormone receptor superfamily that interacts with a subset of retinoic acid response elements. Mol. Cell. Biol. 14: 1544-1551.
3. Mangelsdorf, D.J., et al. 1995. The RXR heterodimers and orphan receptors. Cell 83: 841-850.
4. Choi, H.S., et al. 1997. Differential transactivation by two isoforms of the orphan nuclear hormone receptor CAR. J. Biol. Chem. 272: 23565-23571.
5. Forman, B.M., et al. 1998. Androstane metabolites bind to and deactivate the nuclear receptor CAR-β. Nature 395: 612-615.
6. Frank, C., et al. 2003. Characterization of DNA complexes formed by the nuclear receptor constitutive androstane receptor. J. Biol. Chem. 278: 43299-43310.
7. Burk, O., et al. 2004. The induction of cytochrome P450 3A5 (CYP3A5) in the human liver and intestine is mediated by the xenobiotic sensors pregnane X receptor (PXR) and constitutively activated receptor (CAR). J. Biol. Chem. 279: 38379-38385.
8. Assenat, E., et al. 2004. Interleukin 1β inhibits CAR-induced expression of hepatic genes involved in drug and bilirubin clearance. Hepatology 40: 951-960.

CHROMOSOMAL LOCATION

Genetic locus: Nr1i3 (mouse) mapping to 1 H3.

PRODUCT

CAR1/2 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see CAR1/2 shRNA Plasmid (m): sc-43663-SH and CAR1/2 shRNA (m) Lentiviral Particles: sc-43663-V as alternate gene silencing products.

For independent verification of CAR1/2 (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-43663A, sc-43663B and sc-43663C.

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

CAR1/2 siRNA (m) is recommended for the inhibition of CAR1/2 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 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 CAR1/2 gene expression knockdown using RT-PCR Primer: CAR1/2 (m)-PR: sc-43663-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Litwa, E., et al. 2016. RXRα, PXR and CAR xenobiotic receptors mediate the apoptotic and neurotoxic actions of nonylphenol in mouse hippocampal cells. J. Steroid Biochem. Mol. Biol. 156: 43-52.
2. Whyte-Allman, S.K., et al. 2017. Xenobiotic nuclear receptors pregnane X receptor and constitutive androstane receptor regulate antiretroviral drug efflux transporters at the blood-testis barrier. J. Pharmacol. Exp. Ther. 363: 324-335.
3. Kajta, M., et al. 2019. Triclocarban disrupts the epigenetic status of neuronal cells and induces AHR/CAR-mediated apoptosis. Mol. Neurobiol. 56: 3113-3131.

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.