SANTA CRUZ BIOTECHNOLOGY, INC.

MCR siRNA (h): sc-38836

BACKGROUND

Mineralocorticoid hormones are primarily found in epithelial tissues where they function as regulators of Na^+, K^+ and H^+ ion transport. Aldosterone is a mineralocorticoid that has been shown to regulate electrolyte excretion and intravascular volume and is therefore involved in blood pressure regulation. Mineralocorticoid receptor (MCR or MR) is a member of the steroid/thyroid/retinoic nuclear hormone receptor superfamily that has been shown to activate gene transcription in response to aldosterone binding. Regulation of the mineralocorticoid receptors occurs through either receptor downregulation (negative autoregulation) or hormone-mediated upregulation (positive autoregulation). MCR association with HSP 90 appears to be required for hormone binding to MCR and subsequent MCR activation.

CHROMOSOMAL LOCATION

Genetic locus: NR3C2 (human) mapping to 4q31.23.

PRODUCT

MCR 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 MCR shRNA Plasmid (h): sc-38836-SH and MCR shRNA (h) Lentiviral Particles: sc-38836-V as alternate gene silencing products.

For independent verification of MCR (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-38836A, sc-38836B and sc-38836C.

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

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

MCR (H10E4C9F): sc-53000 is recommended as a control antibody for monitoring of MCR 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 MCR gene expression knockdown using RT-PCR Primer: MCR (h)-PR: sc-38836-PR (20 µl, 571 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Hung, C.S., et al. 2016. Aldosterone induces tissue inhibitor of metalloproteinases-1 expression and further contributes to collagen accumulation: from clinical to bench studies. Hypertension 67: 1309-1320.
2. Sharma, P., et al. 2016. Mineralocorticoid receptor mediated liposomal delivery system for targeted induction of apoptosis in cancer cells. Biochim. Biophys. Acta 1858: 415-421.
3. Chou, C.H., et al. 2018. IL-6 *trans*-signalling contributes to aldosterone-induced cardiac fibrosis. Cardiovasc. Res. 114: 690-702.
4. Liao, C.W., et al. 2019. Interleukin-6 plays a critical role in aldosterone-induced macrophage recruitment and infiltration in the myocardium. Biochim. Biophys. Acta Mol. Basis Dis. 27: 165627.
5. Peng, S.Y., et al. 2022. Aldosterone suppresses endothelial mitochondria through mineralocorticoid receptor/mitochondrial reactive oxygen species pathway. Biomedicines 10: 1119.
6. Nagata, Y., et al. 2024. Mineralocorticoid receptor signaling inhibits bladder cancer progression. Am. J. Cancer Res. 14: 696-708.

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.