SANTA CRUZ BIOTECHNOLOGY, INC.

11β-HSD2 siRNA (h): sc-41379

BACKGROUND

Glucocorticoid hormone action in target tissues is modulated by 11β-hydroxysteroid dehydrogenase (11β-HSD), which catalyzes the interconversion of hormonally active C11-hydroxylated corticosteroids (cortisol, corticosterone) and their inactive C11-keto metabolites (cortisone, 11-dehydrocorticosterone). At least two isoforms of 11β-HSD exist: a low-affinity NADP-dependent dehydrogenase/oxoreductase (11β-HSD1) and a high-affinity NAD-dependent dehydrogenase (11β-HSD2). The glycosylated 11β-HSD1 protein activates cortisol from cortisone, which is widely expressed in mammals, and is most highly expressed in the liver. 11β-HSD2 inactivates cortisol to cortisone and is expressed in placenta, aldosterone target tissues (kidney, parotid, colon and skin) and pancreas. 11β-HSD1 may play a role in glucose homeostasis and pathogenesis of a number of disorders including Insulin resistance and obesity. 11β-HSD2 associates with differentiation or maturation in human colonic epithelia and may serve as a marker in development and disease. In addition, 11β-HSD2 plays a crucial role in modulating mineralcorticoid and glucocorticoid receptor occupancy by glucocorticoids.

REFERENCES

1. Tannin, G.M., et al. 1991. The human gene for 11β-hydroxysteroid dehydrogenase. Structure, tissue distribution, and chromosomal localization. J. Biol. Chem. 266: 16653-16658.
2. Albiston, A.L., et al. 1994. Cloning and tissue distribution of the human 11β-hydroxysteroid dehydrogenase type 2 enzyme. Mol. Cell. Endocrinol. 105: 11-17.

CHROMOSOMAL LOCATION

Genetic locus: HSD11B2 (human) mapping to 16q22.1.

PRODUCT

11β-HSD2 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 11β-HSD2 shRNA Plasmid (h): sc-41379-SH and 11β-HSD2 shRNA (h) Lentiviral Particles: sc-41379-V as alternate gene silencing products.

For independent verification of 11β-HSD2 (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-41379A, sc-41379B and sc-41379C.

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

11β-HSD2 siRNA (h) is recommended for the inhibition of 11β-HSD2 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

11β-HSD2 (C-9): sc-365529 is recommended as a control antibody for monitoring of 11β-HSD2 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 11β-HSD2 gene expression knockdown using RT-PCR Primer: 11β-HSD2 (h)-PR: sc-41379-PR (20 µl, 458 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Song, X., et al. 2010. Grape seed proanthocyanidin suppression of breast cell carcinogenesis induced by chronic exposure to combined 4-(methylnitrosamino)-1-(3-pyridyl)-1-butanone and benzo[a]pyrene. Mol. Carcinog. 49: 450-463.
2. Lu, X., et al. 2019. 17β-hydroxysteroid dehydrogenase 4 induces liver cancer proliferation-associated genes via Stat3 activation. Oncol. Rep. 41: 2009-2019.

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.