

11 β -HSD2 siRNA (m): sc-41380

BACKGROUND

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

REFERENCES

1. Tannin, G.M., et al. 1991. The human gene for 11 β -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 11 β -hydroxysteroid dehydrogenase type 2 enzyme. *Mol. Cell. Endocrinol.* 105: 11-17.
3. Brown, R.W., et al. 1996. Cloning and production of antisera to human placental 11 β -hydroxysteroid dehydrogenase type 2. *Biochem. J.* 313: 1007-1017.
4. Takahashi, K., et al. 1998. 11 β -hydroxysteroid dehydrogenase type II in human colon: a new marker of fetal development and differentiation in neoplasms. *Anticancer Res.* 18: 3381-3388.
5. Stewart, P.M. and Krozowski, Z.S. 1999. 11 β -hydroxysteroid dehydrogenase. *Vitam. Horm.* 57: 249-324.
6. Arcuri, F., et al. 1999. Expression of 11 β -hydroxysteroid dehydrogenase in early pregnancy: implications in human trophoblast-endometrial interactions. *Semin. Reprod. Endocrinol.* 17: 53-61.
7. Rauz, S., et al. 2001. Expression and putative role of 11 β -hydroxysteroid dehydrogenase isozymes within the human eye. *Invest. Ophthalmol. Vis. Sci.* 42: 2037-2042.
8. Morton, N.M., et al. 2001. Improved lipid and lipoprotein profile, hepatic insulin sensitivity and glucose tolerance in 11 β -hydroxysteroid dehydrogenase type 1 null mice. *J. Biol. Chem.* 276: 41293-41300.
9. Walker, E.A., et al. 2001. Functional expression, characterization, and purification of the catalytic domain of human 11 β -hydroxysteroid dehydrogenase type 1. *J. Biol. Chem.* 276: 21343-21350.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.

CHROMOSOMAL LOCATION

Genetic locus: Hsd11b2 (mouse) mapping to 8 D3.

PRODUCT

11 β -HSD2 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see 11 β -HSD2 shRNA Plasmid (m): sc-41380-SH and 11 β -HSD2 shRNA (m) Lentiviral Particles: sc-41380-V as alternate gene silencing products.

For independent verification of 11 β -HSD2 (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-41380A, sc-41380B and sc-41380C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20 $^{\circ}$ C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20 $^{\circ}$ C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

11 β -HSD2 siRNA (m) is recommended for the inhibition of 11 β -HSD2 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 μ M in 66 μ l. 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 11 β -HSD2 gene expression knockdown using RT-PCR Primer: 11 β -HSD2 (m)-PR: sc-41380-PR (20 μ l). Annealing temperature for the primers should be 55-60 $^{\circ}$ C and the extension temperature should be 68-72 $^{\circ}$ C.

RESEARCH USE

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