SANTA CRUZ BIOTECHNOLOGY, INC.

3β-HSD6 siRNA (m): sc-108889

BACKGROUND

Hydroxysteroid dehydrogenases (HSD, alcohol oxidoreductase, ketosteroid reductase (KSR)) catalyze dehydrogenation of hydroxysteroids to generate broad spectrum steroidal hormone production, that occurs downstream of endoplasmic reticulum (ER) localizing cholesterol biosynthesis. 3β-HSD6 (Hsd3b6, murine type VI 3β-HSD isoform, human HSD3B1, 3β-hydroxysteroid dehydrogenase 6, steroid δ-isomerase 6, hydroxy-δ-5-steroid dehydrogenase, 3β-steroid δ-isomerase 6) is a steroid metabolic enzyme ortholog to 3β-hydroxysteroid dehydrogenase/isomerase (3β-HSD), and essential within mechanistic steroid hormone biosynthesis processes of the adrenal gland, testis, ovary, skin and placenta. 3β-HSD6 protein localizes to aldosterone-producing zona glomerulosa cells of the superficial outer layer of the adrenal cortex (adrenal gland), within testosterone producing interstitial Leydig cells of the male testes, skin sebaceous glandular, and placental outer embryonic cavity trophoblast cells. Subcellular structures include intercellular junction, mitochondrial envelope, and nucleolus. 3β-HSD6 mRNA and protein expression are under transcriptional control of the circadian clock, where disruption or malfunction of sleep cycle is a known risk factor of high blood pressure (hypertension). Heavy metal cadmium, an environmental (toxin) endocrine disruptor of spermatogenesis, down-regulates testosterone synthesis genes LHCGR (luteinizing hormone/choriogonadotropin receptor) and 3β-HSD6. Tissue-specific steroid hormone metabolism in the context of differentiation state reflects extensive 3β-HSD6-dependent steroid physiology.

REFERENCES

1. Doi, M., et al. 2010. Salt-sensitive hypertension in circadian clock-deficient Cry-null mice involves dysregulated adrenal Hsd3b6. Nat. Med. 16: 67-74.
2. Yamamura, K., et al. 2014. Immunolocalization of murine type VI 3β-hydroxysteroid dehydrogenase in the adrenal gland, testis, skin, and placenta. Mol. Cell. Endocrinol. 382: 131-138.
3. Yao, Y., et al. 2022. Letrozole protects against cadmium-induced inhibition of spermatogenesis via LHCGR and Hsd3b6 to activate testosterone synthesis in mice. Reprod. Biol. Endocrinol. 20: 43.
4. Long, T., et al. 2022. Structural enzymology of cholesterol biosynthesis and storage. Curr. Opin. Struct. Biol. 74: 102369.
5. Del Castillo-Izquierdo, A., et al. 2022. Bidirectional relationships between the gut microbiome and sexual traits. Am. J. Physiol. Cell Physiol. E-published.

CHROMOSOMAL LOCATION

Genetic locus: Hsd3b6 (mouse) mapping to 3 F2.2.

PRODUCT

3β-HSD6 siRNA (m) is a target-specific 19-25 nt siRNA 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 3β-HSD6 shRNA Plasmid (m): sc-108889-SH and 3β-HSD6 shRNA (m) Lentiviral Particles: sc-108889-V as alternate gene silencing products.

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

3β-HSD6 siRNA (m) is recommended for the inhibition of 3β-HSD6 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 3β-HSD6 gene expression knockdown using RT-PCR Primer: 3β-HSD6 (m)-PR: sc-108889-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

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.