SANTA CRUZ BIOTECHNOLOGY, INC.

GnRH II siRNA (h): sc-39544

BACKGROUND

Human reproduction is controlled by the hypothalaic-pituitary gonadal axis laid down early in fetal development. Gonadotropin releasing hormone (GnRH), also known as GnRH-associated peptide, luteinizing hormone releasing hormone (LHRH), luliberin or gonadorelin, is a decapeptide that is an important molecule in the hypothalamic-pituitary-gonadal axis control circuit. GnRH is produced by hypothalamic neurons and secreted in a pulsatile manner into the capillary plexus of the medianeminence. GnRH affects the release of lutenizing hormone and follicle stimulating hormone from gonadotropic cells in the anterior pituitary. In addition to hypothalamic GnRH (GnRH I), a second GnRH form (GnRH II) functions primarily in the midbrain. GnRH is expressed in the acrosomal region of human sperm and in the anterior pituitary tissue and cancer cells. Unlike GnRH I, GnRH II is highly expressed outside the brain, particularly in the kidney, bone marrow and prostate, suggesting that it may have multiple functions. GnRH binds to a specific G protein-coupled receptor in the pituitary to regulate synthesis and secretion of gonadotropins. GnRH II is encoded by a gene located on human chromosome 20p13. It is suggested that the GnRH II gene is silenced in mouse and rat.

REFERENCES

1. Seeburg, P.H., et al. 1984. Characterization of cDNA for precursor of human luteinizing hormone releasing hormone. Nature 311: 666-668.
2. Grosse, R., et al. 1997. Inhibition of gonadotropin-releasing hormone receptor signaling by expression of a splice variant of the human receptor. Mol. Endocrinol. 11: 1305-1318.
3. White, R.B., et al. 1998. Second gene for gonadotropin-releasing hormone in humans. Proc. Natl. Acad. Sci. USA 95: 305-309.
4. Goto, T., et al. 1999. Gonadotropin-releasing hormone agonist has the ability to induce increased matrix metalloproteinase (MMP)-2 and membrane type 1-MMP expression in corpora lutea, and structural luteolysis in rats. J. Endocrinol. 161: 393-402.
5. Lee, C.Y., et al. 2000. Immunoidentification of gonadotropin releasing hormone receptor in human sperm, pituitary and cancer cells. Am. J. Reprod. Immunol. 44: 170-177.
6. Maudsley, S., et al. 2004. Gonadotropin-releasing hormone (GnRH) antagonists promote proapoptotic signaling in peripheral reproductive tumor cells by activating a $G_{\alpha i}$-coupling state of the type I GnRH receptor. Cancer Res. 64: 7533-7544.
7. Maitoko, K., et al. 2004. Gonadotropin-releasing hormone agonist inhibits estrone sulfatase expression of cystic endometriosis in the ovary. Fertil. Steril. 82: 322-326.
8. Fromme, B.J., et al. 2004. Pro7.33(303) of the human GnRH receptor regulates selective binding of mammalian GnRH. Mol. Cell. Endocrinol. 219: 47-59.

CHROMOSOMAL LOCATION

Genetic locus: GNRH2 (human) mapping to 20p13.

PRODUCT

GnRH II siRNA (h) 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 GnRH II shRNA Plasmid (h): sc-39544-SH and GnRH II shRNA (h) Lentiviral Particles: sc-39544-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

GnRH II siRNA (h) is recommended for the inhibition of GnRH II 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

GnRH II (D-9): sc-25344 is recommended as a control antibody for monitoring of GnRH II 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.

RESEARCH USE

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