SANTA CRUZ BIOTECHNOLOGY, INC.

GnRH I (7B101D10): sc-33675

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.

REFERENCES

1. Seeburg, P.H. and Adelman, J.P. 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. $Pro^{7.33(303)}$ of the human GnRH receptor regulates selective binding of mammalian GnRH. Mol. Cell. Endocrinol. 219: 47-59.
9. Enomoto, M., et al. 2004. Proliferation of TSU-Pr1, a human prostatic carcinoma cell line is stimulated by gonadotropin-releasing hormone. Life Sci. 74: 3141-3152.

CHROMOSOMAL LOCATION

Genetic locus: GNRH1 (human) mapping to 8p21.2; Gnrh1 (mouse) mapping to 14 D1.

SOURCE

GnRH I (7B101D10) is a mouse monoclonal antibody raised against amino acids 25-33 of GnRH I of rat origin.

PRODUCT

Each vial contains 200 µg IgG_1 in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

GnRH I (7B101D10) is recommended for detection of GnRH I of mouse, rat and human origin by immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500); non cross-reactive with GnRH II and GnRH III.

Suitable for use as control antibody for GnRH I siRNA (h): sc-39542, GnRH I siRNA (m): sc-39543, GnRH I shRNA Plasmid (h): sc-39542-SH, GnRH I shRNA Plasmid (m): sc-39543-SH, GnRH I shRNA (h) Lentiviral Particles: sc-39542-V and GnRH I shRNA (m) Lentiviral Particles: sc-39543-V.

Molecular Weight of GnRH I pre-proform: 10 kDa.

Molecular Weight of GnRH I pro form: 8 kDa.

SELECT PRODUCT CITATIONS

1. Khan, M.A., et al. 2008. Immunisation with a plasmid DNA vaccine encoding gonadotrophin releasing hormone (GnRH-I) and T-helper epitopes in saline suppresses rodent fertility. Vaccine 26: 1365-1374.
2. Yang, X., et al. 2020 Prepubertal overexposure to manganese induce precocious puberty through $GABA_A$ receptor/nitric oxide pathway in immature female rats. Ecotoxicol. Environ. Saf. 188: 109898.
3. Yang, X., et al. 2022. The m^6A mRNA demethylase FTO regulates GnRH secretion in Mn-induced precocious puberty. Mol. Cell. Endocrinol. 542: 111523.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

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.