SANTA CRUZ BIOTECHNOLOGY, INC.

NOBOX (I-14): sc-132004

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Early ovarian folliculogenesis is characterized by the breakdown of germ cell clusters and formation of primordial follicles. The cessation of ovarian function under the age of 40 years results in premature ovarian failure (POF) and is accompanied by amenorrhea, hypoestrogenism and elevated serum gonadotropin concentrations. 1% of all women are affected by POF, and mutations in a few genes, including inhibin α, FSH receptor and the LH/choriogonadotropin receptor have been linked to POF. In addition, several germ cell specific genes and downstream transcription factors are thought to play an important role in human oogenesis. NOBOX (newborn ovary homeobox gene), an ooctye-specific homeobox gene, is a critical protein involved in early folliculogenesis. Missense mutations have been shown to cause nonsyndromic ovarian failure by disrupting the NOBOX proteins ability to bind to NOBOX DNA-binding element (NBE), and thereby inhibiting its regulation of Pou5f1 and GDF-9. NOBOX expression in the ovary is oocyte specific, but it shows expression in adult testis and pancreas as well.

REFERENCES

1. Suzumori, N., Yan, C., Matzuk, M.M. and Rajkovic, A. 2002. NOBOX is a homeobox-encoding gene preferentially expressed in primordial and growing oocytes. Mech. Dev. 111: 137-141.
2. Rajkovic, A., Pangas, S.A., Ballow, D., Suzumori, N. and Matzuk, M.M. 2004. NOBOX deficiency disrupts early folliculogenesis and oocyte-specific gene expression. Science 305: 1157-1159.
3. Zhao, X.X., Suzumori, N., Yamaguchi, M. and Suzumori, K. 2005. Mutational analysis of the homeobox region of the human NOBOX gene in Japanese women who exhibit premature ovarian failure. Fertil. Steril. 83: 1843-1844.
4. Choi, Y. and Rajkovic, A. 2006. Genetics of early mammalian folliculogenesis. Cell. Mol. Life Sci. 63: 579-590.
5. Choi, Y. and Rajkovic, A. 2006. Characterization of NOBOX DNA binding specificity and its regulation of GDF-9 and Pou5f1 promoters. J. Biol. Chem. 281: 35747-35756.
6. Huntriss, J., Hinkins, M. and Picton, H.M. 2006. ccDNA cloning and expression of the human NOBOX gene in oocytes and ovarian follicles. Mol. Hum. Reprod. 12: 283-289.
7. Qin, Y., Choi, Y., Zhao, H., Simpson, J.L., Chen, Z.J. and Rajkovic, A. 2007. NOBOX homeobox mutation causes premature ovarian failure. Am. J. Hum. Genet. 81: 576-581.
8. Choi, Y., Qin, Y., Berger, M.F., Ballow, D.J., Bulyk, M.L. and Rajkovic, A. 2007. Microarray analyses of newborn mouse ovaries lacking NOBOX. Biol. Reprod. 77: 312-319.
9. Suzumori, N., Pangas, S.A. and Rajkovic, A. 2007. Candidate genes for premature ovarian failure. Curr. Med. Chem. 14: 353-357.

CHROMOSOMAL LOCATION

Genetic locus: Nobox (mouse) mapping to 6 B2.1.

RESEARCH USE

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

SOURCE

NOBOX (I-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of NOBOX of mouse origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-132004 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

NOBOX (I-14) is recommended for detection of NOBOX of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for NOBOX siRNA (m): sc-150015, NOBOX shRNA Plasmid (m): sc-150015-SH and NOBOX shRNA (m) Lentiviral Particles: sc-150015-V.

Molecular Weight (predicted) of human/rat/mouse NOBOX: 74/74/58 kDa.

Molecular Weight (observed) of human/rat/mouse NOBOX: 56/45/45 kDa.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

STORAGE

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

PROTOCOLS

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