SANTA CRUZ BIOTECHNOLOGY, INC.

NOBOX (D-3): sc-390016

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 gonado-tropin concentrations. 1% of all women are affected by POF, and mutations in a few genes, including inhibinα, fsh receptor and the LH/cho-riogonadotropin receptor have been linked to POF. In addition, several germ cell specific genes and downstream transcription factors are thought to play and 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 non-syndromic 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., et al. 2002. NOBOX is a homeobox-encoding gene preferentially expressed in primordial and growing oocytes. Mech. Dev. 111: 137-141.
2. Rajkovic, A., et al. 2004. NOBOX deficiency disrupts early folliculogenesis and oocyte-specific gene expression. Science 305: 1157-1159.
3. Zhao, X.X., et al. 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., et al. 2006. Genetics of early mammalian folliculogenesis. Cell. Mol. Life Sci. 63: 579-590.
5. Choi, Y., et al. 2006. Characterization of NOBOX DNA binding specificity and its regulation of Gdf9 and Pou5f1 promoters. J. Biol. Chem. 281: 35747-35756.
6. Huntriss, J., et al. 2006. cDNA cloning and expression of the human NOBOX gene in oocytes and ovarian follicles. Mol. Hum. Reprod. 12: 283-289.

CHROMOSOMAL LOCATION

Genetic locus: NOBOX (human) mapping to 7q35; Nobox (mouse) mapping to 6 B2.1.

SOURCE

NOBOX (D-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 53-85 within an internal region of NOBOX of mouse origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-390016 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

NOBOX (D-3) is recommended for detection of NOBOX of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], 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).

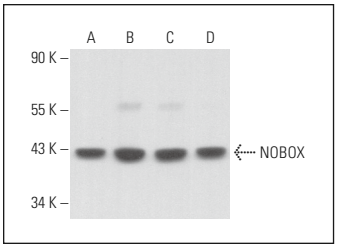
Suitable for use as control antibody for NOBOX siRNA (h): sc-89594, NOBOX siRNA (m): sc-150015, NOBOX shRNA Plasmid (h): sc-89594-SH, NOBOX shRNA Plasmid (m): sc-150015-SH, NOBOX shRNA (h) Lentiviral Particles: sc-89594-V and NOBOX shRNA (m) Lentiviral Particles: sc-150015-V.

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

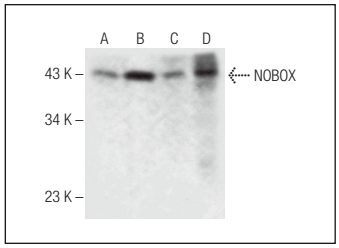
Molecular Weight (observed) of human/rat/mouse NOBOX: 56/45/45 kDa.

Positive Controls: F9 cell lysate: sc-2245, NIH/3T3 nuclear extract: sc-2138 or rat testis extract: sc-2400.

DATA



NOBOX (D-3): sc-390016. Western blot analysis of NOBOX expression in ES-2 (**A**), NTERA-2 cl.D1 (**B**), A-10 (**C**) and RPE-J (**D**) whole cell lysates.



NOBOX (D-3): sc-390016. Western blot analysis of NOBOX expression in F9 whole cell lysate (**A**) and NIH/3T3 nuclear extract (**B**) and rat testis (**C**) and mouse testis (**D**) tissue extracts.

SELECT PRODUCT CITATIONS

1. Cho, J., et al. 2021. Vascular remodeling by placenta-derived mesenchymal stem cells restores ovarian function in ovariectomized rat model via the VEGF pathway. Lab. Invest. 101: 304-317.
2. Park, H., et al. 2022. Increased phosphatase regenerating liver-1 trigger vascular remodeling in injured ovary via platelet-derived growth factor signaling pathway. Stem Cell Res. Ther. 13: 95.

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.