

NOBOX (A-5): sc-514178

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 oocyte-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., 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.

CHROMOSOMAL LOCATION

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

SOURCE

NOBOX (A-5) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 61-79 within an internal region of NOBOX of mouse origin.

PRODUCT

Each vial contains 200 μ g IgG_{2b} lambda light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

NOBOX (A-5) is available conjugated to agarose (sc-514178 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-514178 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-514178 PE), fluorescein (sc-514178 FITC), Alexa Fluor[®] 488 (sc-514178 AF488), Alexa Fluor[®] 546 (sc-514178 AF546), Alexa Fluor[®] 594 (sc-514178 AF594) or Alexa Fluor[®] 647 (sc-514178 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-514178 AF680) or Alexa Fluor[®] 790 (sc-514178 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-514178 P, (100 μ g peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

RESEARCH USE

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

APPLICATIONS

NOBOX (A-5) 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 μ g per 100-500 μ g 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).

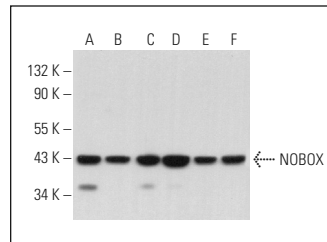
Suitable for use as control antibody for NOBOX siRNA (h): sc-89594, NOBOX siRNA (m): sc-150015, NOBOX shRNA Plasmid (h): sc-89594-SH, NOBOX shRNA Plasmid (m): sc-150015-SH, NOBOX shRNA (h) Lentiviral Particles: sc-89594-V and NOBOX shRNA (m) Lentiviral Particles: sc-150015-V.

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

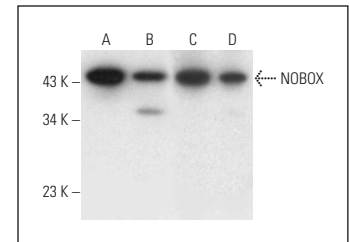
Molecular Weight (observed) of human/rat/mouse NOBOX: 56/45/45 kDa.

Positive Controls: NIH/3T3 nuclear extract: sc-2138, mouse ovary extract: sc-2404 or mouse testis extract: sc-2405.

DATA



NOBOX (A-5): sc-514178. Western blot analysis of NOBOX expression in F9 (A), ES-2 (B), NTERA-2 cl.D1 (C), A-10 (D), Sol8 (E) and RPE-J (F) whole cell lysates.



NOBOX (A-5): sc-514178. Western blot analysis of NOBOX expression in NIH/3T3 nuclear extract (A), F9 whole cell lysate (B) and mouse ovary (C) and mouse testis (D) tissue extracts.

SELECT PRODUCT CITATIONS

1. Xiong, J., et al. 2019. Proteomic analysis of mouse ovaries during the prepubertal stages. *Exp. Cell Res.* 377: 36-46.
2. Yao, C., et al. 2022. Hypo-hydroxymethylation of NOBOX is associated with ovarian dysfunction in rat offspring exposed to prenatal hypoxia. *Reprod. Sci.* 29: 1424-1436.
3. Meng, L., et al. 2022. Identification of oogonial stem cells in chicken ovary. *Cell Prolif.* E-published.
4. Zhou, J., et al. 2023. SP1 impacts the primordial to primary follicle transition by regulating cholesterol metabolism in granulosa cells. *FASEB J.* 37: e22767.

STORAGE

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

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