

Nkx-3.1 (A-3): sc-393190



The Power to Question

BACKGROUND

The homeobox gene Nkx-3.1 is the human homolog of *Drosophila* bagpipe, which, in conjunction with tinman, determines cell fate in the dorsal mesoderm. In mammalian species, Nkx-3.1 is predominantly expressed in prostate, and it regulates prostate development in response to sonic hedgehog (Shh) signaling by exerting growth-suppressive and differentiating effects on prostatic epithelium. Nkx-3.1 is also expressed at lower levels in other tissues, including the heart and gut, in a Shh independent manner, where it plays a role in regulating proliferation of glandular epithelium and in the formation of ducts in prostate and minor salivary glands. Nkx-3.1 preferentially binds the TAAGTA sequence, which has not been reported for any other NK class homeoprotein. The human Nkx-3.1 gene is located on chromosome 8p21.2, which frequently undergoes a loss of heterozygosity, and although Nkx-3.1 is not a tumor suppressor gene, it may be a useful marker for benign and malignant prostate epithelium.

REFERENCES

1. Azpiazu, N., et al. 1993. tinman and bagpipe: two homeo box genes that determine cell fates in the dorsal mesoderm of *Drosophila*. *Genes Dev.* 7: 1325-1340.
2. Scialolino, P.J., et al. 1997. Tissue-specific expression of murine Nkx3.1 in the male urogenital system. *Dev. Dyn.* 209: 127-138.
3. Bowen, C., et al. 2000. Loss of Nkx-3.1 expression in human prostate cancers correlates with tumor progression. *Cancer Res.* 60: 6111-6115.

CHROMOSOMAL LOCATION

Genetic locus: NKX3-1 (human) mapping to 8p21.2; Nkx-3.1 (mouse) mapping to 14 D2.

SOURCE

Nkx-3.1 (A-3) is a mouse monoclonal antibody raised against amino acids 1-50 mapping at the N-terminus of Nkx-3.1 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin. Also available as TransCruz reagent for Gel Supershift and ChIP applications, sc-393190 X, 200 µg/0.1 ml.

Nkx-3.1 (A-3) is available conjugated to agarose (sc-393190 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-393190 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-393190 PE), fluorescein (sc-393190 FITC), Alexa Fluor® 488 (sc-393190 AF488), Alexa Fluor® 546 (sc-393190 AF546), Alexa Fluor® 594 (sc-393190 AF594) or Alexa Fluor® 647 (sc-393190 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-393190 AF680) or Alexa Fluor® 790 (sc-393190 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

Nkx-3.1 (A-3) is recommended for detection of Nkx-3.1 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).

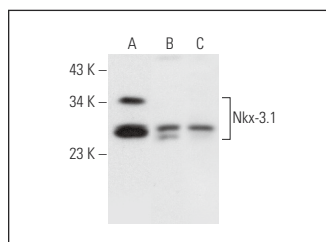
Suitable for use as control antibody for Nkx-3.1 siRNA (h): sc-36077, Nkx-3.1 siRNA (m): sc-36078, Nkx-3.1 shRNA Plasmid (h): sc-36077-SH, Nkx-3.1 shRNA Plasmid (m): sc-36078-SH, Nkx-3.1 shRNA (h) Lentiviral Particles: sc-36077-V and Nkx-3.1 shRNA (m) Lentiviral Particles: sc-36078-V.

Nkx-3.1 (A-3) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

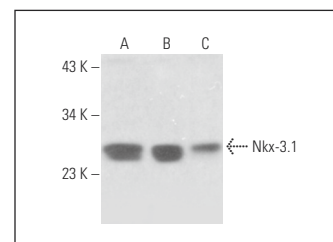
Molecular Weight of Nkx-3.1: 35 kDa.

Positive Controls: LNCaP cell lysate: sc-2231, NTERA-2 cl.D1 whole cell lysate: sc-364181 or human colon extract: sc-363757.

DATA



Nkx-3.1 (A-3): sc-393190. Western blot analysis of Nkx-3.1 expression in LNCaP (A) and NTERA-2 cl.D1 (B) whole cell lysates and human colon tissue extract (C).



Nkx-3.1 (A-3): sc-393190. Western blot analysis of Nkx-3.1 expression in NTERA-2 cl.D1 (A), MCF7 (B) and CCRF-CEM (C) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Park, J.J., et al. 2020. Deletion of Nkx-3.1 via CRISPR/Cas9 induces prostatic intraepithelial neoplasia in C57BL/6 mice. *Technol. Cancer Res. Treat.* 19: 1533033820964425.
2. Cunha, G.R., et al. 2020. A comparison of prostatic development in xenografts of human fetal prostate and human female fetal proximal urethra grown in dihydrotestosterone-treated hosts. *Differentiation* 115: 37-52.
3. Cunha, G.R., et al. 2021. Human urogenital sinus mesenchyme is an inducer of prostatic epithelial development. *Am. J. Clin. Exp. Urol.* 9: 329-336.
4. Swamynathan, M.M., et al. 2023. FABP5 Inhibition against PTEN-mutant therapy resistant prostate cancer. *Cancers* 16: 60.

RESEARCH USE

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