

Nkx-2.5 (A-3): sc-376565



The Power to Question

BACKGROUND

Nkx-2.5, which is also designated cardiac specific homeobox protein (Csx), is a homeodomain-containing nuclear transcription protein of the Nkx-2 gene family. These transcriptional activators, which include thyroid transcription factor-1 (TTF-1), regulate the expression of tissue specific genes and are required for maintaining the differentiated phenotypes of various lineages. Nkx-2.5 is a homolog to the tinman protein expressed in *Drosophila*, and is essential for normal cardiovascular development. Expression of Nkx-2.5 during cardiomyogenesis is required for cardiac septation, in which a single atrium and ventricle are separated into four chambers. During embryonic development, Nkx-2.5 is also expressed in the foregut, thyroid, spleen and stomach, while in the adult expression is predominantly restricted to the heart. Mutations that disrupt Nkx-2.5 can result in atrial-septal defects, embryonic lethality and congenital heart disease.

REFERENCE

1. Guazzi, S., et al. 1990. Thyroid nuclear factor 1 (TTF-1) contains a homeodomain and displays a novel DNA binding specificity. *EMBO J.* 9: 3631-3639.
2. Komuro, I., et al. 1993. Csx: a murine homeobox-containing gene specifically expressed in the developing heart. *Proc. Natl. Acad. Sci. USA* 90: 8145-8149.

CHROMOSOMAL LOCATION

Genetic locus: NKX2-5 (human) mapping to 5q35.1; Nkx2-5 (mouse) mapping to 17 A3.3.

SOURCE

Nkx-2.5 (A-3) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 21-55 near the N-terminus of Nkx-2.5 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-376565 X, 200 µg/0.1 ml.

Nkx-2.5 (A-3) is available conjugated to agarose (sc-376565 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-376565 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376565 PE), fluorescein (sc-376565 FITC), Alexa Fluor® 488 (sc-376565 AF488), Alexa Fluor® 546 (sc-376565 AF546), Alexa Fluor® 594 (sc-376565 AF594) or Alexa Fluor® 647 (sc-376565 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376565 AF680) or Alexa Fluor® 790 (sc-376565 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-376565 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

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RESEARCH USE

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

APPLICATIONS

Nkx-2.5 (A-3) is recommended for detection of Nkx-2.5 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).

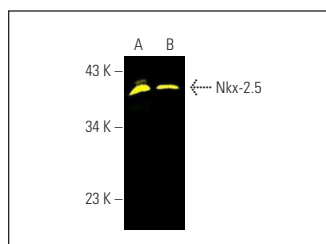
Suitable for use as control antibody for Nkx-2.5 siRNA (h): sc-36075, Nkx-2.5 siRNA (m): sc-36076, Nkx-2.5 shRNA Plasmid (h): sc-36075-SH, Nkx-2.5 shRNA Plasmid (m): sc-36076-SH, Nkx-2.5 shRNA (h) Lentiviral Particles: sc-36075-V and Nkx-2.5 shRNA (m) Lentiviral Particles: sc-36076-V.

Nkx-2.5 (A-3) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

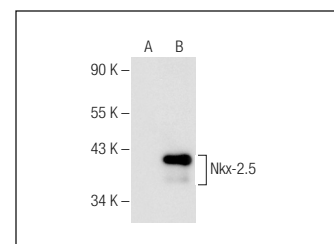
Molecular Weight of Nkx-2.5: 40 kDa.

Positive Controls: Nkx-2.5 (h): 293T Lysate: sc-114181, NTERA-2 cl.D1 whole cell lysate: sc-364181 or CCRF-CEM cell lysate: sc-2225.

DATA



Nkx-2.5 (A-3) Alexa Fluor® 488: sc-376565 AF488. Direct fluorescent western blot analysis of Nkx-2.5 expression in NTERA-2 cl.D1 (A) and CCRF-CEM (B) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214.



Nkx-2.5 (A-3): sc-376565. Western blot analysis of Nkx-2.5 expression in non-transfected: sc-117752 (A) and human Nkx-2.5 transfected: sc-114181 (B) 293T whole cell lysates.

SELECT PRODUCT CITATIONS

1. Liang, X., et al. 2013. HCN4 dynamically marks the first heart field and conduction system precursors. *Circ. Res.* 113: 399-407.
2. Stopp, S., et al. 2017. Deletion of Gas2l3 in mice leads to specific defects in cardiomyocyte cytokinesis during development. *Proc. Natl. Acad. Sci. USA* 114: 8029-8034.
3. Zhang, J.Z., et al. 2019. A human iPSC double-reporter system enables purification of cardiac lineage subpopulations with distinct function and drug response profiles. *Cell Stem Cell* 24: 802-811.e5.
4. Lauschke, K., et al. 2020. A novel human pluripotent stem cell-based assay to predict developmental toxicity. *Arch. Toxicol.* 94: 3831-3846.
5. Li, M., et al. 2021. Brachyury engineers cardiac repair competent stem cells. *Stem Cells Transl. Med.* 10: 385-397.

STORAGE

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