

Nkx-2.5 (h): 293T Lysate: sc-114181

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.

REFERENCES

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.
3. Lints, T.J., et al. 1993. Nkx-2.5: a novel murine homeobox gene expressed in early heart progenitor cells and their myogenic descendants. *Development* 119: 419-431.
4. Turbay, D., et al. 1996. Molecular cloning, chromosomal mapping, and characterization of the human cardiac-specific homeobox gene hCsx. *Mol. Med.* 2: 86-96.
5. Schott, J.J., et al. 1998. Congenital heart disease caused by mutations in the transcription factor Nkx-2.5. *Science* 281: 108-111.
6. Tanaka, M., et al. 1999. The cardiac homeobox gene Csx/NKX2-5 lies genetically upstream of multiple genes essential for heart development. *Development* 126: 1269-1280.
7. Schwartz, R.J., et al. 1999. Building the heart piece by piece: modularity of *cis*-elements regulating Nkx-2.5 transcription. *Development* 126: 4187-4192.
8. Xie, C.Q., et al. 2007. Transplantation of human undifferentiated embryonic stem cells into a myocardial infarction rat model. *Stem Cells Dev.* 16: 25-29.
9. Ventura, C., et al. 2007. Hyaluronan mixed esters of butyric and retinoic acid drive cardiac and endothelial fate in term placenta human mesenchymal stem cells and enhance cardiac repair in infarcted rat hearts. *J. Biol. Chem.* 282: 14243-14252.

STORAGE

Store at -20° C. Repeated freezing and thawing should be minimized. Sample vial should be boiled once prior to use. Non-hazardous. No MSDS required.

PROTOCOLS

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

CHROMOSOMAL LOCATION

Genetic locus: NKX2-5 (human) mapping to 5q35.1.

PRODUCT

Nkx-2.5 (h): 293T Lysate represents a lysate of human Nkx-2.5 transfected 293T cells and is provided as 100 µg protein in 200 µl SDS-PAGE buffer.

APPLICATIONS

Nkx-2.5 (h): 293T Lysate is suitable as a Western Blotting positive control for human reactive Nkx-2.5 antibodies. Recommended use: 10-20 µl per lane.

Control 293T Lysate: sc-117752 is available as a Western Blotting negative control lysate derived from non-transfected 293T cells.

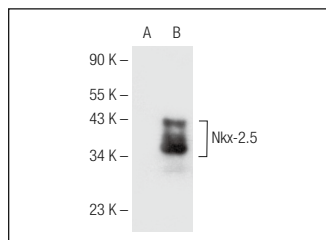
Nkx-2.5 (F-2): sc-365207 is recommended as a positive control antibody for Western Blot analysis of enhanced human Nkx-2.5 expression in Nkx-2.5 transfected 293T cells (starting dilution 1:100, dilution range 1:100-1:1,000).

RECOMMENDED SUPPORT REAGENTS

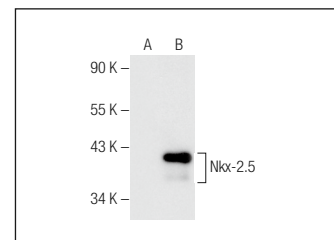
To ensure optimal results, the following support reagents are recommended:

1) Western Blotting: use m-IgGλ BP-HRP: sc-516132 or m-IgGλ BP-HRP (Cruz Marker): sc-516132-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048.

DATA



Nkx-2.5 (F-2): sc-365207. 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.



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.

RESEARCH USE

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