CELL APPLICATIONS, INC.

Nkx2.5/Csx Antibody

Cat. No. CP10186

Applications:	**WB**
Detected MW:	**35 kDa**
Species & Reactivity:	**Human**
Isotype:	**Mouse IgG1**

BACKGROUND

The homeobox gene *Nkx2.5* (also called *Csx*) is the earliest known marker of vertebrate heart development. It has a sequence homology to the Drosophila tinman, which is required for the dorsal mesoderm specification. It belongs to the NK-2 homeobox family and contains 1 homeobox DNA-binding domain. Heterozygous mutations of this gene were found to cause human congenital heart disease. It was demonstrated that Nkx2.5 is implicated in commitment to and/or differentiation of the myocardial lineage. It interacts with the C-terminal zinc finger of GATA4 through its homeobox domain and acts as a transcriptional activator of ANF in cooperation with GATA4. It also interacts with JARID2 which represses its ability to activate transcription of ANF. In addition, it interacts with FBLIM1 as well as with HIPK1 and HIPK2, but not HIPK3.[1] The minimal DNA binding consensus for Nkx2.5 contains a 5'-TNNAGTG-3' sequence motif. Nkx2.5 regulates expression of several essential transcription factors in the developing heart. It was shown that mutant mice embryos completely null for Nkx2.5 showed arrest of cardiac development after looping and poor development of blood vessels. Moreover, there were severe defects in vascular formation and hematopoiesis in the mutant yolk sac. Interestingly TUNEL staining and PCNA staining showed neither enhanced apoptosis nor reduced cell proliferation in the mutant myocardium. Nkx2.5 is required for later differentiation of cardiac myocytes. Thus it is primarily known as a positive regulator of cardiac development and inducer of cardiomyocyte differentiation.[2] Nkx2.5 is highly expressed in the adult and embryonic heart and to a less extent in lingual muscle, spleen, stomach and lung as well. However, little is known about its function outside the heart. It was shown that Nkx2.5 acts as a suppressor of α-*SMA* gene expression, and thus myofibroblast differentiation.[3] Defects in NKX2-5 are the cause of atrial septal defect with atrioventricular conduction defects (ASD-AVCD) and also the cause of tetralogy of Fallot (TOF) and congenital hypothyroidism non-goitrous type 5 (CHNG5).[4]

References:

1. Schwartz, R.J. & Olson, E.N.: Develop.126:4187-92, 1999
2. Pashmforoush, M. et al: Cell 117:373-86, 2004
3. Hu, B. et al: Am. J. Respir. Cell Mol. Biol. 42:218-26, 2010
4. McElhinney,D.B. et al: J. Am. College Cardiol.42:1650-55, 2003

TECHNICAL INFORMATION

Source:
Nkx2.5/Csx Antibody is a mouse monoclonal antibody raised against purified recombinant human Nkx2.5 fragments expressed in E. *coli*.

Specificity and Sensitivity:
This antibody detects Nkx2.5/Csx proteins without cross-reactivity with other family members.

Storage Buffer: PBS and 30% glycerol

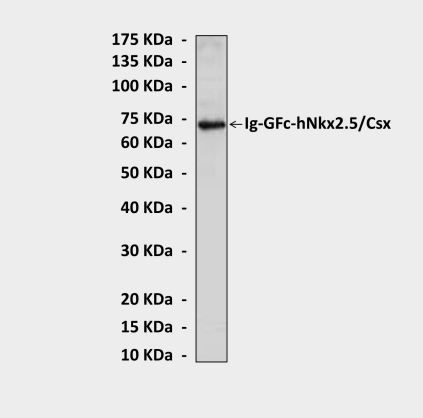
Storage:
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

APPLICATIONS

Application:	*Dilution:
WB	1:1000
IP	n/d
IHC	n/d
ICC	n/d
FACS	n/d

**Optimal dilutions must be determined by end user.*

QUALITY CONTROL DATA



Western Blot detection of IgG-Fc-hNkx2.5 fusion protein expressed in 293 cells using Nkx2.5 Antibody.