Revision 1

Store at -20C

#48243

Cardiogenesis Marker Antibody Sampler Kit

1 Kit (7 x 20 microliters)

Cell Signaling TECHNOLOGY®

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Product Includes	Product #	Quantity	Mol. Wt	Isotype/Source
NKX2.5 (E1Y8H) Rabbit mAb	8792	20 µl	30-42 kDa	Rabbit IgG
GATA-6 (D61E4) XP® Rabbit mAb	5851	20 µl	55 kDa	Rabbit IgG
MEF2C (D80C1) XP® Rabbit mAb	5030	20 µl	50-60 kDa	Rabbit IgG
α-Actinin (D6F6) XP® Rabbit mAb	6487	20 µl	100 kDa	Rabbit IgG
Troponin I (D6F8) Rabbit mAb	13083	20 µl	28 kDa	Rabbit IgG
Troponin T (Cardiac) Antibody	5593	20 µl	40 kDa	Rabbit
Connexin 43 Antibody	3512	20 µl	39, 41, 43, 44 kDa	Rabbit
Anti-rabbit IgG, HRP-linked Antibody	7074	100 µl		Goat

Please visit cellsignal.com for individual component applications, species cross-reactivity, dilutions, protocols, and additional product information.

Description

The Cardiogenesis Marker Antibody Sampler Kit provides an economical means of evaluating proteins involved in heart development. This kit contains enough antibody to perform two western blot experiments per primary antibody.

Storage

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at –20°C. Do not aliquot the antibody.

Background

Cardiogenesis is a complex developmental event involving numerous transcription factors. NKX2.5 is a member of the NKX homeobox transcription factor family, which plays an essential role in heart development and is among the earliest factors expressed in the cardiac lineage in developing embryos. Mutations in NKX2.5 are associated with several congenital heart conditions, such as atrial defect with atrioventricular conduction defects (ASD-AVCD) and Tetralogy of Fallot (TOF) (1,2). GATA proteins comprise a group of transcription factors that are related by the presence of conserved zinc finger DNA binding domains, which bind directly to the nucleotide sequence core element GATA (3-5). GATA-6 plays a critical role in endoderm development and knock out of GATA-6 is embryonic lethal due to defects in formation of the heart tube and a failure to develop extraembryonic endoderm (6). MEF2C is a member of the MEF2 (myocyte enhancer factor 2) family of transcription factors. The MEF2 family members were originally described as muscle-specific DNA binding proteins that recognize MEF2 motifs found within the promoters of many muscle-specific genes (7,8). α-Actinin was first recognized as an actin cross-linking protein. The α-actinin protein interacts with a large number of proteins involved in signaling to the cytoskeleton, including those involved in cellular adhesion, migration, and immune cell targeting (9). The muscle isoforms 2 and 3 (ACTN2, ACTN3) localize to the Z-discs of striated muscle and to dense bodies and plaques in smooth muscle (9). Troponin, working in conjunction with tropomyosin, functions as a molecular switch that regulates muscle contraction in response to changes in the intracellular Ca^{2+} concentration. Troponin consists of three subunits: the Ca^{2+}-binding subunit troponin C (TnC), the tropomyosin-binding subunit troponin T (TnT), and the inhibitory subunit troponin I (TnI) (10). Assays for measuring serum concentrations of cardiac muscle TnT (cTNT), as well as cTnI, have been reported for analyzing cardiac injury. Connexin 43 (Cx43) is a member of the large family of gap junction proteins, which assemble as a hexamer and are transported to the plasma membrane to create a hemichannel that can associate with hemichannels on nearby cells to create cell-to-cell channels. Gap junction communication is important in development and regulation of cell growth. Phosphorylation of Cx43 is important in regulating assembly and function of gap junctions (11,12).

Background References

1. Benson, D.W. et al. (1999) *J Clin Invest* 104, 1567-73.
2. Reamon-Buettner, S.M. and Borlak, J. (2010) *Hum Mutat* 31, 1185-94.
3. Ko, L.J. and Engel, J.D. (1993) *Mol Cell Biol* 13, 4011-22.
4. Merika, M. and Orkin, S.H. (1993) *Mol Cell Biol* 13, 3999-4010.
5. Lowry, J.A. and Atchley, W.R. (2000) *J Mol Evol* 50, 103-15.
6. Cai, K.Q. et al. (2008) *Dev Dyn* 237, 2820-9.
7. Martin, J.F. et al. (1994) *Mol Cell Biol* 14, 1647-56.
8. Yu, Y.T. et al. (1992) *Genes Dev* 6, 1783-98.

9. Otey, C.A. and Carpen, O. (2004) *Cell Motil Cytoskeleton* 58, 104-11.
10. Ward, D.G. et al. (2002) *J Biol Chem* 277, 41795-801.
11. Musil, L.S. et al. (1990) *J Cell Biol* 111, 2077-88.
12. Musil, L.S. and Goodenough, D.A. (1991) *J Cell Biol* 115, 1357-74.

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Limited Uses