

## BACKGROUND

The family of GATA transcription factors consists of six proteins (GATA-1-6). GATA-1-2-3 are important regulators of hematopoietic stem cells and their derivatives, whereas GATA-4, -5, and -6 genes are expressed in various mesoderm and endoderm-derived tissues. They have been found to play important roles in multiple stages of mammalian life, beginning with early development, continuing during organogenesis, and finally in homeostasis in the adult and involved in the development of many organ systems, including those for hematopoietic, cardiovascular, reproductive, and gut-endoderm derived tissues.<sup>1</sup> A characteristic feature of GATA factors is a domain of two adjacent zinc fingers (Cys-X2-Cys-X17-Cys-X2-Cys) that directs preferential binding to the nucleotide sequence element 5'-(A/T)GATA(A/G)-3' of target gene promoters.

Gene targeting and null mutation studies have revealed that GATA4 plays a critical role in the regulation of embryogenesis as well as heart development. Mice with deletion of the GATA4 locus exhibit embryonic lethality at E9.5 with a defect in fusion of two primordial tubes, whereas selective overexpression of GATA4 in the heart results in cardiac hypertrophy.<sup>2</sup> Recent studies also show that GATA4 serves as a survival factor for cardiomyocytes, which protects the heart from doxorubicin-induced cardiotoxicity.<sup>3</sup> The transcriptional function of GATA4 is modulated via protein-protein interaction and/or posttranslational modifications. For instance, interaction of GATA4 with another GATA family member, GATA6, cooperatively activates ANF and BNP promoters, and phosphorylation on Ser-105 in GATA4 by mitogen-activated protein kinase enhances its function of promoting cardiomyocyte differentiation as well as cardiomyocyte hypertrophy, suggesting that the posttranslational modification on GATA4 is critical for its functional performance in the cellular physiological as well as pathological processes.<sup>4</sup>

### References:

1. Pikkarainen, S. et al: *Cardiovascul. Res.* 63:196-207, 2004
2. Molkenin, J.D. & Olson, E.N.: *Circulation* 96:3833-5, 1997
3. Kim, Y et al: *Mol. Pharmacol.* 63:368-377, 2003
4. Kitta, K. et al: *J. Biol. Chem.* 278:4705-12, 2003

## TECHNICAL INFORMATION

### Source:

GATA-4 Antibody is a mouse monoclonal antibody raised against purified recombinant human GATA-4 fragments expressed in *E. coli*.

### Specificity and Sensitivity:

This antibody detects endogenous GATA-4 proteins without cross-reactivity with other family members.

**Storage Buffer:** PBS and 30% glycerol

### Storage:

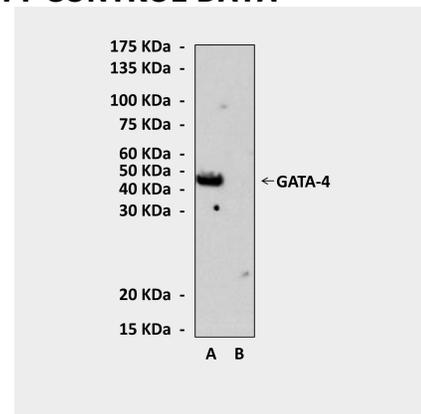
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

## 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 GATA-4 proteins in rat adult (A) and fetal (B) heart tissue lysate using GATA-4 Antibody.

