

## BACKGROUND

The Ly-6 family of cell surface antigens might easily be regarded as a prototype for the analysis of the function of differentiation antigens on immunocompetent cells. LY6A (also known as SCA-1) is a glycosyl phosphatidylinositol-linked cell-surface glycoprotein.<sup>1</sup> LY6A is frequently used for isolation of hematopoietic stem cells. It is a well-established marker of murine hematopoietic stem cells, and also is expressed on memory T cells. It has been suggested that the functional maintenance of T-cell memory requires the expression of Sca1 on a specialized population of memory T cells termed "memory stem cells".<sup>2</sup> However, expression of LY6A is not restricted to hematopoietic stem cells, it is also found on skeletal muscle stem cells, mammary epithelium stem cells, kidney epithelial cells, osteoblasts, and vasculature of brain, heart, and liver. LY6A is encoded by the prototypic member of the *Ly-6* gene family, *Ly6a*, encoding two alleles (*Ly6a.1* or *Ly6e* and *Ly6a.2*) in a mouse strain-specific manner. Thus, LY6A has also been referred to as Ly6A/E. In addition to differing by two amino acids, the two alleles demonstrate differential tissue distribution due to differential transcriptional or posttranscriptional regulation. In *Ly6a.2* mouse strains, including C57BL/6, essentially all bone marrow-repopulating cells are LY6A-positive compared with 25% in *Ly6a.1/Ly6e* strains, such as BALB/c. Also, the number of LY6A-positive thymocytes and peripheral T lymphocytes is different between different mouse strains. In *Ly6a*<sup>-/-</sup> mice, LY6A was found to have important functions in regulating the repopulating capacity of hematopoietic stem cells and the development of committed progenitor cells, megakaryocytes, and platelets. *Ly6a*<sup>-/-</sup> mice also exhibit defects in T cell signaling and self-renewal capacity of early mesenchymal precursors, that give rise to adipocytes, osteoblasts, chondrocytes, and muscle cells. Furthermore, the localization of LY6A in the testis is described.<sup>3</sup>

### References:

1. Shevach, E.M. & Korty, P.E.: Immunol. Today 10:195-200, 1989
2. Whitmire, J.K. et al: Eur. J. Immunol. 39:1494-1504, 2009
3. van Bragt, M.P.A. et al: Biol. Reprod. 73:634-8, 2005

## TECHNICAL INFORMATION

### Source:

LY6A Antibody is a rabbit antibody raised against a short peptide from human LY6A sequence.

### Specificity and Sensitivity:

This antibody detects endogenous levels of LY6A proteins without cross-reactivity with other related proteins.

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

### Storage:

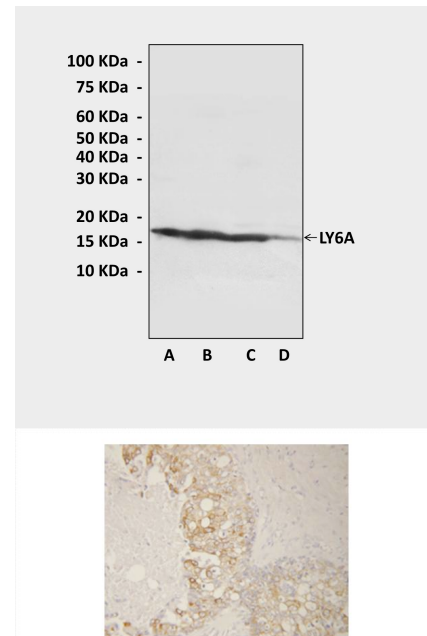
Store at -20°C for at least one year. Store at 4°C for frequent use. Avoid repeated freeze-thaw cycles.

## APPLICATIONS

Application:	*Dilution:
WB	1:1000
IP	n/d
IHC	1:50-200
ICC	n/d
FACS	n/d

\*Optimal dilutions must be determined by end user.

## QUALITY CONTROL DATA



**Top:** Western Blot detection of LY6A proteins in rat heart (A), rat liver (B), rat testicular (C), and rat brain (D) tissue lysates using LY6A Antibody. **Bottom:** This antibody stains paraffin-embedded human mammary cancer tissue in immunohistochemical staining.

