

# Ig $\lambda$ light chain (4G7): sc-69923

## BACKGROUND

Antibody producing cells of the immune system require multiple rearrangements of immunoglobulin (antibody, Ig) genes. Immunoglobulins are four-chain, Y-shaped, monomeric structures of two identical heavy chains and two identical light chains held together through interchain disulfide bonds. Immunoglobulins in vertebrates help to remove non-self molecules or cells (antigens) by recognizing and binding to the antigen and carrying out effector functions that activate the immune system. Variable genetic combinations of the five heavy chain classes (M, D, G, E and A) and the two light chain isotypes,  $\kappa$  and  $\lambda$ , confer the role of an antibody. The variable region genes encoding immunoglobulin  $\kappa$  and  $\lambda$  chains are assembled from three DNA segments, the V, C and J genes. Human  $\kappa$  light chain genes map to chromosome 2 and the human  $\lambda$  light chain genes map to chromosome 22.  $\kappa$  gene recombination can precede  $\lambda$  gene recombination during B cell ontogeny and only a single light chain type is expressed in individual B cells. Antibodies in camels and sharks can lack light chain, suggesting that light chain may not be essential for antigen binding in some vertebrates.

## REFERENCES

- Hieter, P.A., Max, E.E., Seidman, J.G., Maizel, J.V., Jr. and Leder, P. 1980. Cloned human and mouse  $\kappa$  immunoglobulin constant and J region genes conserve homology in functional segments. *Cell* 22: 197-207.
- Mason, D.W., Pugh, C.W. and Webb, M. 1981. The rat mixed lymphocyte reaction: roles of a dendritic cell in intestinal lymph and T cell subsets defined by monoclonal antibodies. *Immunology* 44: 75-87.
- Dyer, M.J. and Hunt, S.V. 1981. Committed T lymphocyte stem cells of rats. Characterization by surface W3/13 antigen and radiosensitivity. *J. Exp. Med.* 154: 1164-1177.
- Hieter, P.A., Maizel, J.V., Jr. and Leder, P. 1982. Evolution of human immunoglobulin  $\kappa$  J region genes. *J. Biol. Chem.* 257: 1516-1522.
- Durdik, J., Moore, M.W. and Selsing, E. 1984. Novel  $\kappa$  light-chain gene rearrangements in mouse  $\lambda$  light chain-producing B lymphocytes. *Nature* 307: 749-752.
- Horejsí, V., Hilgert, I., Kristofová, H., Bazil, V., Bukovský, A. and Kulhánková, J. 1986. Monoclonal antibodies against human leucocyte antigens. I. Antibodies against  $\beta$ -2-Microglobulin, immunoglobulin  $\kappa$  light chains, HLA-DR-like antigens, T8 antigen, T1 antigen, a monocyte antigen and a pan-leucocyte antigen. *Folia Biol.* 32: 12-25.
- Pilström, L. 2002. The mysterious immunoglobulin light chain. *Dev. Comp. Immunol.* 26: 207-215.
- Li, M., Feng, D.Y., Ren, W., Zheng, L., Zheng, H., Tang, M. and Cao, Y. 2004. Expression of immunoglobulin  $\kappa$  light chain constant region in abnormal human cervical epithelial cells. *Int. J. Biochem. Cell Biol.* 36: 2250-2257.
- LocusLink Report (LocusID: 3514). <http://www.ncbi.nlm.nih.gov/LocusLink/>

## STORAGE

Store at 4° C, **\*\*DO NOT FREEZE\*\***. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

## CHROMOSOMAL LOCATION

Genetic locus: IGL (human) mapping to 22q11.22.

## SOURCE

Ig  $\lambda$  light chain (4G7) is a mouse monoclonal antibody raised against free Ig  $\lambda$  light chain of human origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG<sub>1</sub> lambda light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

Ig  $\lambda$  light chain (4G7) is recommended for detection of Ig  $\lambda$  light chain of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

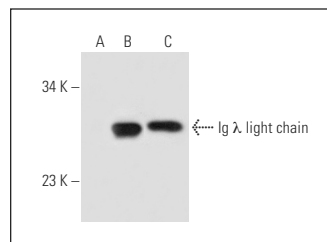
Molecular Weight of Ig  $\lambda$  light chain: 25-30 kDa.

Positive Controls: NAMALWA cell lysate: sc-2234, U266 whole cell lysate: sc-364800 or Ig  $\lambda$  light chain (h): 293T Lysate: sc-114792.

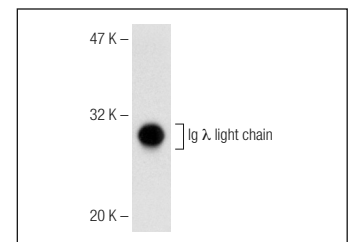
## RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG $\lambda$  BP-HRP: sc-516132 or m-IgG $\lambda$  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. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

## DATA



Ig  $\lambda$  light chain (4G7): sc-69923. Western blot analysis of Ig  $\lambda$  light chain expression in non-transfected 293T: sc-117752 (A), human Ig  $\lambda$  light chain transfected 293T: sc-114792 (B) and NAMALWA (C) whole cell lysates.



Ig  $\lambda$  light chain (4G7): sc-69923. Western blot analysis of Ig  $\lambda$  light chain expression in U266 whole cell lysate.

## SELECT PRODUCT CITATIONS

- Burbelo, P.D., et al. 2015. Lack of evidence for molecular mimicry in HIV-infected subjects. *PLoS ONE* 10: e0127662.

## RESEARCH USE

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