

# Ig $\kappa$ light chain (GA160): sc-65895

## 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., et al. 1980. Cloned human and mouse  $\kappa$  immunoglobulin constant and J region genes conserve homology in functional segments. *Cell* 22: 197-207.
- Mason, D.W., et al. 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., et al. 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., et al. 1982. Evolution of human immunoglobulin  $\kappa$  J region genes. *J. Biol. Chem.* 257: 1516-1522.
- Durdik, J., et al. 1984. Novel  $\kappa$  light-chain gene rearrangements in mouse  $\lambda$  light chain-producing B lymphocytes. *Nature* 307: 749-752.
- Horejsi, V., et al. 1986. Monoclonal antibodies against human leukocyte 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-leukocyte antigen. *Folia Biol.* 32: 12-25.
- Pilstrom, L. 2002. The mysterious immunoglobulin light chain. *Dev. Comp. Immunol.* 26: 207-215.

## CHROMOSOMAL LOCATION

Genetic locus: IGK (human) mapping to 2p11.2.

## SOURCE

Ig  $\kappa$  light chain (GA160) is a mouse monoclonal antibody raised against Ig  $\kappa$  light chain of human origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG<sub>1</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 0.5% stabilizer protein.

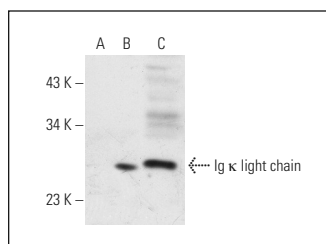
## APPLICATIONS

Ig  $\kappa$  light chain (GA160) is recommended for detection of an antigen present in serum on all immunoglobulins bearing  $\kappa$  light chains 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 flow cytometry (1  $\mu$ g per  $1 \times 10^6$  cells).

Molecular Weight of Ig  $\kappa$  light chain: 25 kDa.

Positive Controls: Ig  $\kappa$  light chain (h): 293T Lysate: sc-114846 or U-698-M whole cell lysate: sc-364799.

## DATA



Ig  $\kappa$  light chain (GA160): sc-65895. Western blot analysis of Ig  $\kappa$  light chain expression in non-transfected 293T: sc-117752 (A), human Ig  $\kappa$  light chain transfected 293T: sc-114846 (B) and U-698-M (C) whole cell lysates.

## STORAGE

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

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.