

# Ig $\kappa$ chain (M-130): sc-33133

## 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 chains, suggesting that light chains 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.
- Li, M., et al. 2004. Expression of immunoglobulin  $\kappa$  light chain constant region in abnormal human cervical epithelial cells. *Int. J. Biochem. Cell Biol.* 36: 2250-2257.

## CHROMOSOMAL LOCATION

Genetic locus: Igk-C (mouse) mapping to 6.

## SOURCE

Ig  $\kappa$  chain (M-130) is a rabbit polyclonal antibody raised against amino acids 1-130 mapping at the N-terminus of Ig  $\kappa$  chain of mouse origin.

## PRODUCT

Each vial contains 200  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## APPLICATIONS

Ig  $\kappa$  chain (M-130) is recommended for detection of Ig  $\kappa$  chain of mouse 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)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Molecular Weight of Ig  $\kappa$  chain: 28 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

## 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) or our catalog for detailed protocols and support products.



Try Ig  $\kappa$  chain (OX20): sc-53080, our highly recommended monoclonal alternative to Ig  $\kappa$  chain (M-130).