

# Ig $\lambda$ chain (MHL-38): sc-53701

## 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

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- 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.
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- Pilstrom, L. 2002. The mysterious immunoglobulin light chain. *Dev. Comp. Immunol.* 26: 207-215.
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## CHROMOSOMAL LOCATION

Genetic locus: IGLC2 (human) mapping to 22p13.

## SOURCE

Ig  $\lambda$  chain (MHL-38) is a mouse monoclonal antibody raised against IgGs and IgM, IgE, IgA cocktail of human origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG<sub>2a</sub> in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

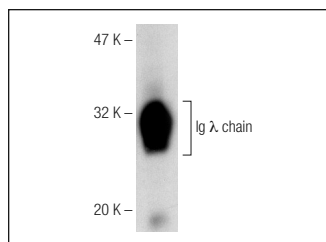
## APPLICATIONS

Ig  $\lambda$  chain (MHL-38) is recommended for detection of Ig  $\lambda$  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 flow cytometry (1  $\mu$ g per  $1 \times 10^6$  cells).

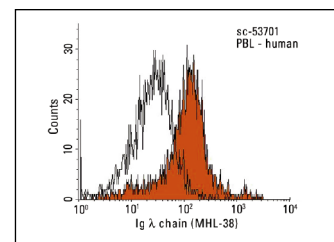
Molecular Weight of Ig  $\lambda$  chain: 25-30 kDa.

Positive Controls: U266 whole cell lysate: sc-364800.

## DATA



Ig  $\lambda$  chain (MHL-38): sc-53701. Western blot analysis of Ig  $\lambda$  chain expression in U266 whole cell lysate.



Ig  $\lambda$  chain (MHL-38): sc-53701. Indirect FCM analysis of human peripheral blood leukocytes stained with Ig  $\lambda$  chain (MHL-38), followed by PE-conjugated goat anti-mouse IgG<sub>2a</sub>: sc-3765. Black line histogram represents the isotype control, normal mouse IgG<sub>2a</sub>: sc-3878.

## 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.