SANTA CRUZ BIOTECHNOLOGY, INC.

Ig λ light chain (JDC-12): sc-69828

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, κ and λ, confer the role of an antibody. The variable region genes encoding immunoglobulin κ and λ chains are assembled from three DNA segments, the V, C and J genes. Human κ light chain genes map to chromosome 2 and the human λ light chain genes map to chromosome 22. κ gene recombination can precede λ 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

1. Hieter, P.A., et al. 1980. Cloned human and mouse κ immunoglobulin constant and J region genes conserve homology in functional segments. Cell 22: 197-207.
2. 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.
3. 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.
4. Hieter, P.A., et al. 1982. Evolution of human immunoglobulin κ J region genes. J. Biol. Chem. 257: 1516-1522.
5. Durdik, J., et al. 1984. Novel κ light-chain gene rearrangements in mouse λ light chain-producing B lymphocytes. Nature 307: 749-752.
6. Horejsí, V., et al. 1986. Monoclonal antibodies against human leucocyte antigens. I. Antibodies against β-2-Microglobulin, immunoglobulin κ light chains, HLA-DR-like antigens, T8 antigen, T1 antigen, a monocyte antigen, and a pan-leucocyte antigen. Folia Biol. 32: 12-25.

CHROMOSOMAL LOCATION

Genetic locus: IGL (human) mapping to 22q11.21.

SOURCE

Ig λ light chain (JDC-12) is a mouse monoclonal antibody of human origin.

PRODUCT

Each vial contains 100 µg IgG_1 lambda light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

RESEARCH USE

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

APPLICATIONS

Ig λ light chain (JDC-12) is recommended for detection of free and bound Ig λ light chain of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and flow cytometry (1 µg per 1 x 10^6 cells).

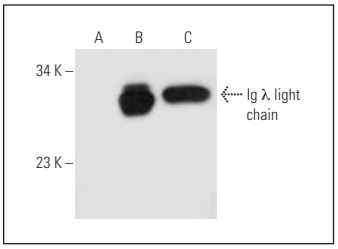
Molecular Weight of Ig λ light chain: 25-30 kDa.

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

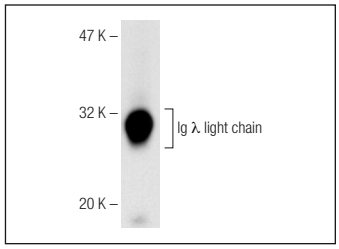
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGλ BP-HRP: sc-516132 or m-IgGλ 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). 3) Immunofluorescence: use m-IgGλ BP-FITC: sc-516185 or m-IgGλ BP-PE: sc-516186 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



Ig λ light chain (JDC-12): sc-69828. Western blot analysis of Ig λ light chain expression in non-transfected 293T: sc-117752 (**A**), human Ig λ light chain transfected 293T: sc-114792 (**B**) and NAMALWA (**C**) whole cell lysates.



Ig λ light chain (JDC-12): sc-69828. Western blot analysis of Ig λ light chain expression in U266 whole cell lysate.

SELECT PRODUCT CITATIONS

1. Anastasiadou, E., et al. 2009. Epstein-Barr virus infection leads to partial phenotypic reversion of terminally differentiated malignant B cells. Cancer Lett. 284: 165-174.
2. Ge, F., et al. 2011. Quantitative proteomic analysis of tumor reversion in multiple myeloma cells. J. Proteome Res. 10: 845-855.

STORAGE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.