SANTA CRUZ BIOTECHNOLOGY, INC.

Ig κ chain (L1C1): sc-59265

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 chains, suggesting that light chains 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. Horejsi, V., et al. 1986. Monoclonal antibodies against human leukocyte 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-leukocyte antigen. Folia Biol. 32: 12-25.
7. Pilstrom, L. 2002. The mysterious immunoglobulin light chain. Dev. Comp. Immunol. 26: 207-215.

CHROMOSOMAL LOCATION

Genetic locus: IGKC (human) mapping to 2p25.3.

SOURCE

Ig κ chain (L1C1) is a mouse monoclonal antibody raised against B lymphoma cells of human origin.

STORAGE

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

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Ig κ chain (L1C1) is available conjugated to agarose (sc-59265 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-59265 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-59265 PE), fluorescein (sc-59265 FITC), Alexa Fluor® 488 (sc-59265 AF488), Alexa Fluor® 546 (sc-59265 AF546), Alexa Fluor® 594 (sc-59265 AF594) or Alexa Fluor® 647 (sc-59265 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-59265 AF680) or Alexa Fluor® 790 (sc-59265 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Ig κ chain (L1C1) is recommended for detection of Ig κ 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)] and flow cytometry (1 µg per 1 x 10^6 cells).

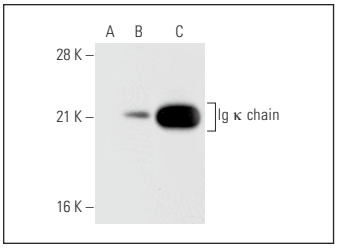
Molecular Weight of Ig κ chain: 28 kDa.

Positive Controls: Ig κ chain (h3): 293T Lysate: sc-117325, GA-10 whole cell lysate: sc-364230 or Raji whole cell lysate: sc-364236.

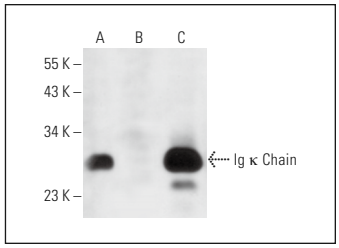
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-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 κ chain (L1C1): sc-59265. Western blot analysis of Ig κ chain expression in non-transfected 293T: sc-117752 (**A**), human Ig κ chain transfected 293T: sc-117325 (**B**) and human PBL (**C**) whole cell lysates.



Ig κ Chain (L1C1): sc-59265. Western blot analysis of Ig κ Chain expression in Raji (**A**), NAMALWA (**B**) and GA-10 (**C**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Xu, C., et al. 2023. Protocol for detecting macrophage-mediated cancer cell phagocytosis *in vitro* and *in vivo*. STAR Protoc. 4: 101940.

RESEARCH USE

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