

Ig κ chain (MH19-1): sc-52338

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.

CHROMOSOMAL LOCATION

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

SOURCE

Ig κ chain (MH19-1) is a mouse monoclonal antibody raised against isolated Bence Jones κ proteins of human origin.

PRODUCT

Each vial contains 500 μ l culture supernatant containing IgG₁ kappa light chain with < 0.1% sodium azide.

APPLICATIONS

Ig κ chain (MH19-1) is recommended for detection of Ig κ chain of human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:10-1:200), immunoprecipitation [10-20 μ l per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution to be determined by researcher, dilution range 1:10-1:200) and immunohistochemistry (including paraffin-embedded sections) (starting dilution to be determined by researcher, dilution range 1:10-1:200).

Molecular Weight of Ig κ chain: 28 kDa.

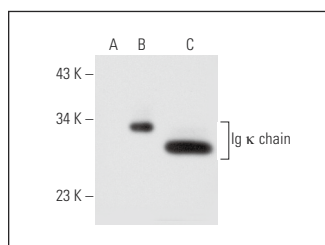
Positive Controls: Ig κ chain (h): 293T Lysate: sc-111799, Raji whole cell lysate: sc-364236 or NAMALWA cell lysate: sc-2234.

RECOMMENDED SUPPORT REAGENTS

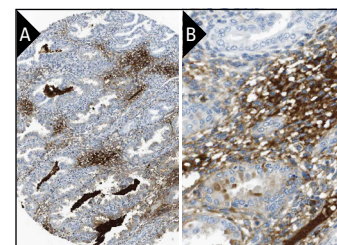
To ensure optimal results, the following support reagents are recommended:

- 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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).
- 3) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.
- 4) Immunohistochemistry: use m-IgG κ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



Ig κ chain (MH19-1): sc-52338. Western blot analysis of Ig κ chain expression in non-transfected 293T: sc-111752 (A), human Ig κ chain transfected 293T: sc-111799 (B) and human PBL (C) whole cell lysates.



Ig κ chain (MH19-1): sc-52338. Immunoperoxidase staining of formalin fixed, paraffin-embedded human endometrium tissue showing cytoplasmic staining of glandular cells and cells in endometrial stroma at low (A) and high (B) magnification. Kindly provided by The Swedish Human Protein Atlas (HPA) program.

SELECT PRODUCT CITATIONS

1. Nakanishi, T., et al. 2013. Topologies of amyloidogenic proteins in Congo red-positive sliced sections of formalin-fixed paraffin embedded tissues by MALDI-MS imaging coupled with on-tissue tryptic digestion. *Clin. Biochem.* 46: 1595-1600.

STORAGE

For immediate and continuous use, store at -20° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

RESEARCH USE

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

PROTOCOLS

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