

IgM (R1/69): sc-53347

BACKGROUND

Immunoglobulin M (IgM) is the largest circulating antibody molecule in humans. It consists of a heavy chain (μ -chain) and a light chain (κ - or λ -chain), as well as 5 base units and 10 binding sites, though it cannot bind all 10 simultaneously because of steric hindrance. IgM chain C refers to the constant region of the IgM heavy chain that is involved in immune regulation. IgM forms polymers by covalently linking multiple immunoglobulins together with disulfide bonds. It normally exists as a pentamer, but occasionally as a hexamer. Because of its polymeric nature, IgM has high avidity, and it is especially effective at complement activation. Due to its large size, IgM does not diffuse well, and it is found in the interstitium in very low amounts. IgM is mainly found in serum; however, because of the J chain, it is also important as a secretory immunoglobulin. IgM is the first immunoglobulin expressed by mature B cells, and it normally appears early in the course of an infection and does not reappear after further exposure.

REFERENCES

1. Liu, C.P., et al. 1980. Mapping of heavy chain genes for mouse immunoglobulins M and D. *Science* 209: 1348-1353.
2. Marchalonis, J.J., et al. 1981. A marmoset T-lymphocyte protein related to defined human serum immunoglobulin and fragments. *J. Immunogenet.* 8: 165-175.
3. Richards, J.E., et al. 1983. Unusual sequences in the murine immunoglobulin μ - δ heavy-chain region. *Nature* 306: 483-487.

CHROMOSOMAL LOCATION

Genetic locus: IGHM (human) mapping to 14p13.

SOURCE

IgM (R1/69) is a mouse monoclonal antibody raised against myeloid cells of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

IgM (R1/69) is available conjugated to agarose (sc-53347 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-53347 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-53347 PE), fluorescein (sc-53347 FITC), Alexa Fluor[®] 488 (sc-53347 AF488), Alexa Fluor[®] 546 (sc-53347 AF546), Alexa Fluor[®] 594 (sc-53347 AF594) or Alexa Fluor[®] 647 (sc-53347 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-53347 AF680) or Alexa Fluor[®] 790 (sc-53347 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

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

APPLICATIONS

IgM (R1/69) is recommended for detection of IgM of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Molecular Weight of IgM heavy (μ) chain: 76-92 kDa.

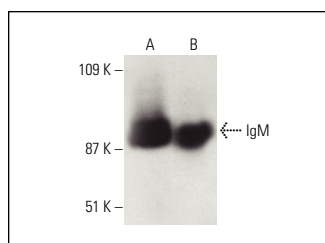
Molecular Weight of IgM light (κ/λ) chain: 25-30 kDa.

Positive Controls: U-698-M whole cell lysate: sc-364799, NAMALWA cell lysate: sc-2234 or Ramos cell lysate: sc-2216.

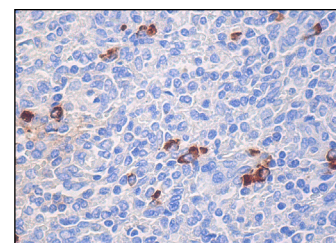
RECOMMENDED SUPPORT REAGENTS

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



IgM (R1/69) HRP: sc-53347 HRP. Direct western blot analysis of IgM expression in Ramos (A) and U-698-M (B) whole cell lysates.



IgM (R1/69): sc-53347. Immunoperoxidase staining of formalin fixed, paraffin-embedded human spleen tissue showing cytoplasmic staining of subset of cells in red pulp.

SELECT PRODUCT CITATIONS

1. Muto, M., et al. 2016. Toll-like receptor 9 stimulation induces aberrant expression of a proliferation-inducing ligand by tonsillar germinal center B cells in IgA nephropathy. *J. Am. Soc. Nephrol.* 28: 1227-1238.
2. Choi, J., et al. 2020. Regulation of B cell receptor-dependent NF κ B signaling by the tumor suppressor KLHL14. *Proc. Natl. Acad. Sci. USA* 117: 6092-6102.

RESEARCH USE

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