

PRODUCT INFORMATION



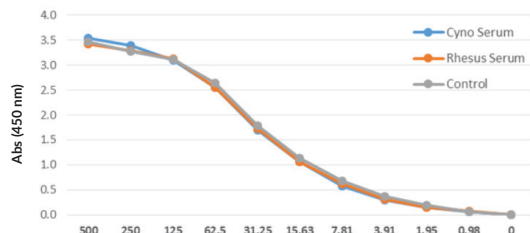
IgG4 (human) Monoclonal Antibody (Clone RM120)

Item No. 32123

Overview and Properties

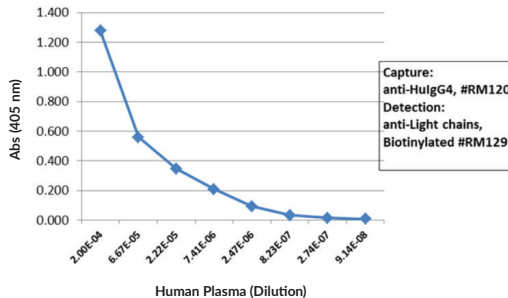
Contents: This vial contains 100 µg of protein A-affinity purified monoclonal antibody.
Synonym: Immunoglobulin G4
Immunogen: Peptide corresponding to the hinge region of human IgG4
Cross Reactivity: (+) Human IgG4; (-) Human IgG1, IgG2, IgG3, IgM, IgA, IgD, IgE; (-) Cynomolgus monkey, goat, mouse, rat, rhesus monkey IgG
Species Reactivity: (+) Human
Form: Liquid
Storage: -20°C (as supplied)
Stability: ≥1 year
Storage Buffer: PBS with 50% glycerol, 1% BSA, and 0.09% sodium azide
Concentration: 1 mg/ml
Clone: RM120
Host: Rabbit
Isotype: IgG
Applications: ELISA, immunocytochemistry (ICC), immunohistochemistry (IHC), Western blot (WB); the recommended starting dilution is 50-200 ng/well (for capture) and 0.05-0.2 µg/ml (for detection) for ELISA, 1-10 µg/ml for ICC and IHC, and 0.5-2 µg/ml for WB. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images



IgG4 Antibody with or without 2% Monkey Serum

Detection of IgG4 in Monkey Serum. Sandwich ELISA using IgG4 (human) Monoclonal Antibody as the capture antibody and Ig Light Chain (human) Monoclonal Antibody - Biotinylated (Item No. 32112) as the detection antibody, followed by a HRP-conjugated streptavidin.



Sandwich ELISA of IgG4 (human) Monoclonal Antibody. Sandwich ELISA using IgG4 (human) Monoclonal Antibody as the capture antibody and Ig Light Chain (human) Monoclonal Antibody - Biotinylated (Item No. 32112) as the detection antibody, followed by alkaline phosphatase-conjugated streptavidin.

WARNING
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

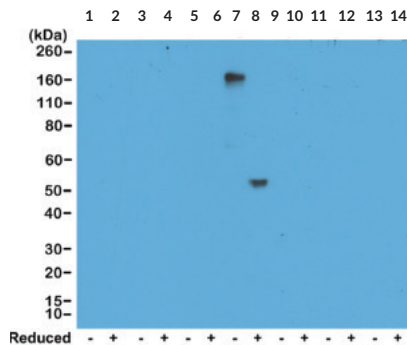
SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY
Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

Copyright Cayman Chemical Company, 11/10/2023

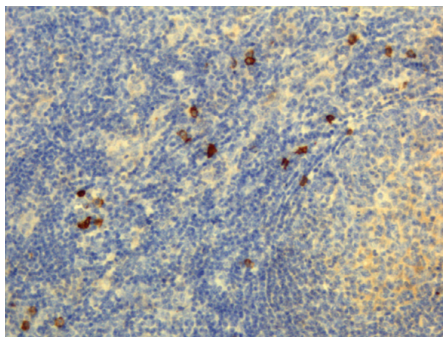
CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM

PRODUCT INFORMATION

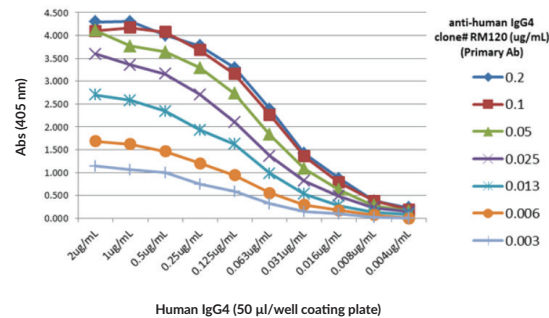


- Lane 1: Human IgG1 (non-reduced)
- Lane 2: Human IgG1 (reduced)
- Lane 3: Human IgG2 (non-reduced)
- Lane 4: Human IgG2 (reduced)
- Lane 5: Human IgG3 (non-reduced)
- Lane 6: Human IgG3 (reduced)
- Lane 7: Human IgG4 (non-reduced)
- Lane 8: Human IgG4 (reduced)
- Lane 9: Mouse IgG (non-reduced)
- Lane 10: Mouse IgG (reduced)
- Lane 11: Rat IgG (non-reduced)
- Lane 12: Rat IgG (reduced)
- Lane 13: Goat IgG (non-reduced)
- Lane 14: Goat IgG (reduced)

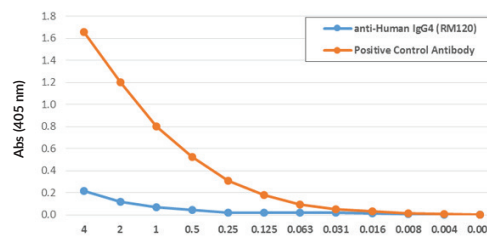
SDS-PAGE Analysis of IgG4 (human) Monoclonal Antibody. WB of human, mouse, rat, and goat IgG shows IgG4 (human) Monoclonal Antibody reacts to human IgG4, in both whole molecule (~150 kDa, non-reduced) and heavy chain (~50 kDa, reduced) forms. No cross reactivity with other isotypes of human IgG, or mouse, rat, or goat IgG.



Immunohistochemical staining of formalin fixed and paraffin-embedded human lymphoid tissue section using IgG4 (human) Monoclonal Antibody (Item No. 32123).



A Titer ELISA of IgG4 (human) Monoclonal Antibody. The plate was coated with different amounts of human IgG4. A serial dilution of IgG4 (human) Monoclonal Antibody was used as the primary antibody, followed by an alkaline phosphatase-conjugated anti-rabbit IgG as the secondary antibody.



ELISA of Rhesus Monkey IgG. IgG4 (human) Monoclonal Antibody does not react to monkey IgG. The plate was coated with rhesus monkey IgG. A serial dilution of IgG4 (human) Monoclonal Antibody and a monkey IgG binding antibody (positive control) was used as the detection antibody.

CAYMAN CHEMICAL
 1180 EAST ELLSWORTH RD
 ANN ARBOR, MI 48108 · USA
 PHONE: [800] 364-9897
 [734] 971-3335
 FAX: [734] 971-3640
 CUSTSERV@CAYMANCHEM.COM
 WWW.CAYMANCHEM.COM

PRODUCT INFORMATION



Description

Immunoglobulin G (IgG) is a member of the immunoglobulin superfamily of glycoproteins that plays a central role in the adaptive immune response.¹ It is produced by B cells and later secreted by plasma cells and is the most abundant circulating antibody in human and mouse serum.¹⁻³ IgG consists of two heavy chains of approximately 50 kDa each and two light chains of approximately 25 kDa each.¹ The heavy chains are linked together by disulfide bonds to form an Fc region and also combine with the light chains to form the Fab region, which mediate receptor and antigen binding, respectively.⁴ IgG is produced following IgM class-switching in response to infection and is involved in numerous humoral host defense responses, including antibody-dependent cell-mediated cytotoxicity (ADCC), toxin neutralization, and pathogen opsonization.² IgG exists as four isotypes in humans, IgG1, IgG2, IgG3, and IgG4, each of which has a distinct effector function. IgG4 is the least predominant IgG isotype in human serum and contains a serine at position 228 in its hinge region that facilitates Fab arm exchange, resulting in two antigen-binding sites and a functionally monovalent antibody.⁵ Increased serum levels of IgG4 positively correlate with desensitization and allergen tolerance in beekeepers, laboratory workers chronically exposed to rodent allergens, and individuals undergoing allergy immunotherapy for severe allergies to cats, dust mites, birch pollen, and wasps. Cayman's IgG4 (human) Monoclonal Antibody can be used for ELISA, immunocytochemistry (ICC), immunohistochemistry (IHC), and Western blot (WB) applications. The antibody recognizes whole IgG4 at approximately 150 kDa under non-reducing conditions and the IgG4 heavy chain at approximately 50 kDa under reducing conditions from human samples.

References

1. Schroeder, H.W., Jr. and Cavicini, L. Structure and function of immunoglobulins. *J. Allergy Clin. Immunol.* **125**(2 Suppl. 2), S41-S52 (2010).
2. Vidarsson, G., Dekkers, G., and Rispens, T. IgG subclasses and allotypes: From structure to effector functions. *Front. Immunol.* **5**, 520 (2014).
3. Mayumi, M., Kuritani, T., Kubagawa, H.M., *et al.* IgG subclass expression by human B lymphocytes and plasma cells: B lymphocytes precommitted to IgG subclass can be preferentially induced by polyclonal mitogens with T cell help. *J. Immunol.* **130**(2), 671-677 (1983).
4. Vaillant A.A.J. and Ramphul K. Immunoglobulin. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing (2020). Available from: <https://www.ncbi.nlm.nih.gov/books/NBK513460/>
5. Trampert, D.C., Hubers, L.M., van de Graaf, S.F.J., *et al.* On the role of IgG4 in inflammatory conditions: lessons for IgG4-related disease. *Biochim. Biophys. Acta Mol. Basis Dis.* **1864**(4 Pt. B), 1401-1409 (2018).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM