

PRODUCT INFORMATION

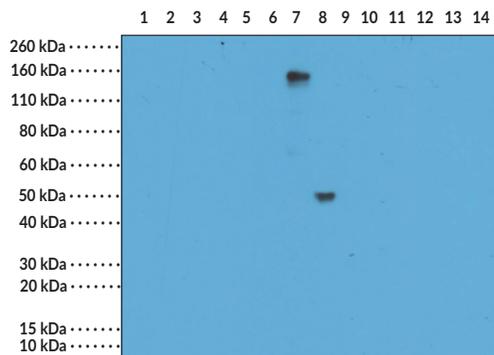


IgG4 (human) Rabbit Monoclonal Antibody - Biotinylated (RM120) Item No. 32146

Overview and Properties

Contents:	This vial contains 50 µg of protein A-affinity purified monoclonal antibody.
Synonym:	Immunoglobulin G4
Immunogen:	Peptide corresponding to the hinge region of human IgG4
Cross Reactivity:	(+) IgG4; (-) Human IgG1, IgG2, IgG3, IgM, IgA, IgD, IgE; (-) Goat, mouse, rat 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:	1.0 mg/ml
Clone:	RM120
Host:	Rabbit
Isotype:	IgG
Applications:	ELISA, Immunocytochemistry (ICC), Immunohistochemistry (IHC), and Western blot (WB); the recommended starting concentration 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



Lane 1: Non-reduced human IgG1
Lane 2: Reduced human IgG1
Lane 3: Non-reduced human IgG2
Lane 4: Reduced human IgG2
Lane 5: Non-reduced human IgG3
Lane 6: Reduced human IgG3
Lane 7: Non-reduced human IgG4
Lane 8: Reduced human IgG4
Lane 9: Non-reduced mouse IgG
Lane 10: Reduced mouse IgG
Lane 11: Non-reduced rat IgG
Lane 12: Reduced rat IgG
Lane 13: Non-reduced goat IgG
Lane 14: Reduced goat IgG

WB of human, mouse, rat, and goat IgG. IgG4 (human) Rabbit Monoclonal Antibody - Biotinylated (RM120) reacts only to human IgG4, in both whole molecule (~150 kDa, non-reduced) and heavy chain (~50kDa, reduced) forms, and not to other human IgG isotypes or mouse, rat or goat IgG.

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

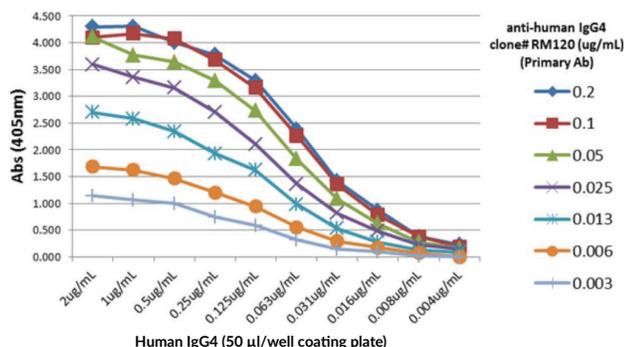
SAFETY DATA
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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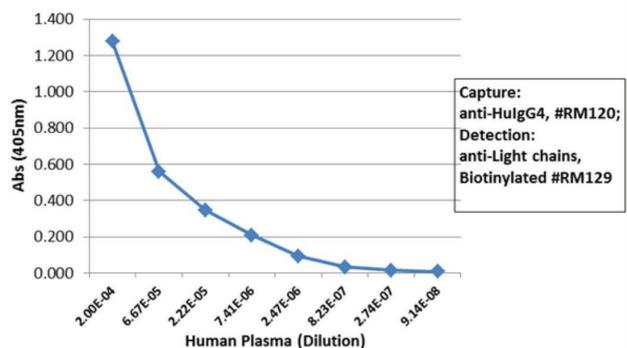
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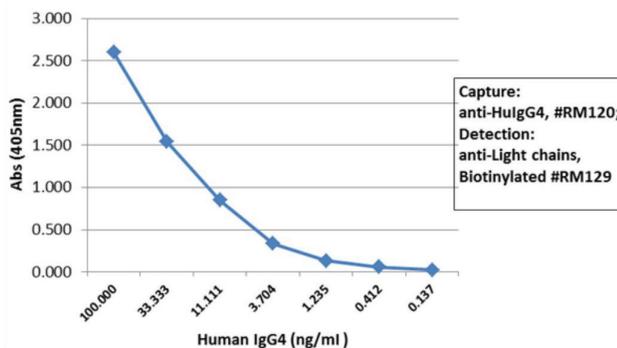


Human IgG4 (50 µl/well coating plate)

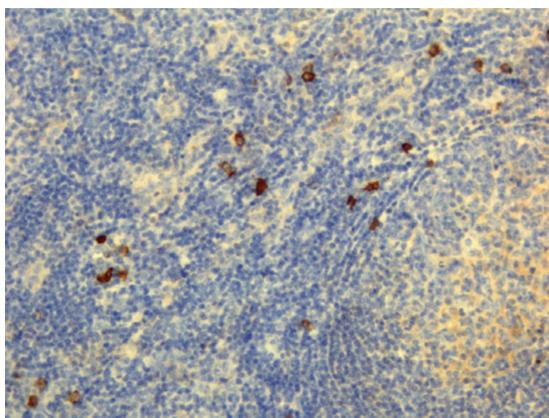
A Titer ELISA using IgG4 (human) Rabbit Monoclonal Antibody - Biotinylated (RM120). The plate was coated with different amounts of human IgG4. A serial dilution of IgG4 (human) Rabbit Monoclonal Antibody - Biotinylated (RM120) was used as the primary antibody and an alkaline phosphatase-conjugated anti-rabbit IgG was used as the secondary antibody.



Sandwich ELISA using IgG4 (human) Rabbit Monoclonal Antibody - Biotinylated (RM120) as the capture antibody and Ig Light Chain (human) Rabbit Monoclonal Antibody - Biotinylated (Item No. 32112) as the detection antibody, followed by alkaline phosphatase-conjugated streptavidin.



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



Immunohistochemical staining of human lymphoid tissue using IgG4 (human) Rabbit Monoclonal Antibody - Biotinylated (RM120).

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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) Rabbit Monoclonal Antibody - Biotinylated (RM120) can be used for ELISA, immunocytochemistry (ICC), immunohistochemistry (IHC), and Western blot (WB) applications. The antibody recognizes the heavy chain of non-reduced and reduced IgG4 at approximately 150 and 50 kDa, respectively, 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): StatPearlsPublishing (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).

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