PRODUCT INFORMATION

γ Heavy Chain (human) Monoclonal Antibody (Clone RM116)

Item No. 32107

## Overview and Properties

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Contents:	This vial contains 100 µg of protein A-affinity purified monoclonal antibody.
Synonym:	IgG Heavy Chain
Immunogen:	Human IgG
Cross Reactivity:	(+) Human IgG1, IgG2, IgG3, IgG4; (-) Human 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:	RM116
Host:	Rabbit
Isotype:	IgG
Applications:	ELISA, Immunocytochemistry (ICC), and Immunohistochemistry (IHC); the recommended starting concentration is 0.05-0.2 µg/ml for detection and per well for capture for ELISA and 0.5-2 µg/ml for ICC and IHC. Other applications were not tested, therefore optimal working concentration/dilution should be determined empirically.

Images
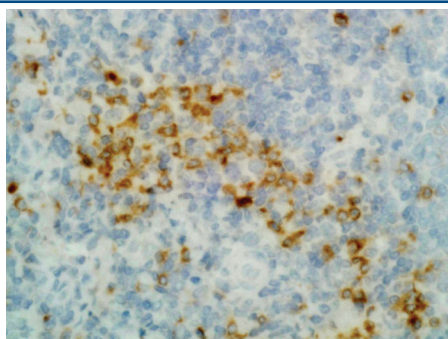
Immunohistochemistry analysis of a human tonsil using γ Heavy Chain (human) Monoclonal Antibody (Clone RM116).
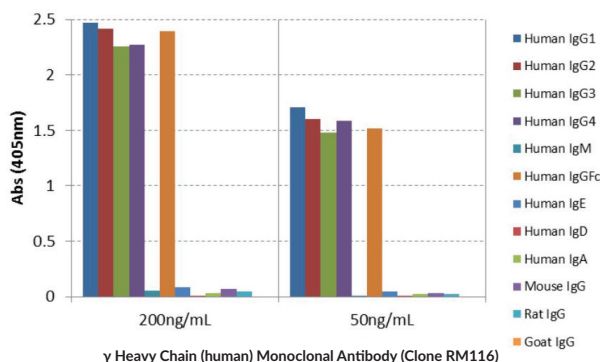
ELISA of Human Immunoglobulins (Igs). γ Heavy Chain (human) Monoclonal Antibody (Clone RM116) reacts to the γ1, γ2, γ3, and γ4 heavy chain of human IgGs, and the Fc of human IgG. No cross reactivity with other human heavy chains, mouse IgG, rat IgG, or goat IgG. The plate was coated with 50 ng/well of different Igs. 200 or 50 ng/ml of γ Heavy Chain (human) Monoclonal Antibody (Clone RM116) was used as the primary antibody. An alkaline phosphatase-conjugated anti-rabbit IgG was used as the secondary antibody.
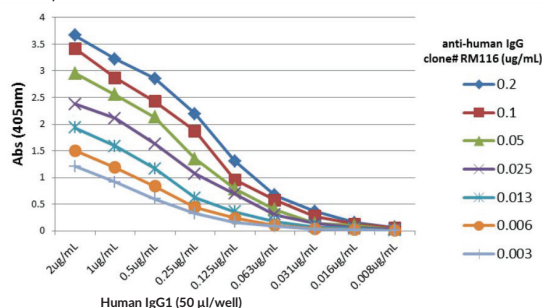
A Titer ELISA Using γ Heavy Chain (human) Monoclonal Antibody (Clone RM116). The plate was coated with different amounts of human IgG1. A serial dilution of γ Heavy Chain (human) Monoclonal Antibody (Clone RM116) was used as the primary antibody. An alkaline phosphatase-conjugated anti-rabbit IgG was used as the secondary antibody.

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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.[1,2] It is produced by B cells and later secreted by plasma cells and is the most abundant circulating antibody in rabbit serum. IgG consists of two identical heavy chains, also known as γ heavy chains, of approximately 50 kDa each and two identical light chains of approximately 25 kDa each.[1] The heavy chains are linked together by a single disulfide bond to form an Fc region and also combine with the light chains through additional disulfide bonds to form the Fab region, which mediate receptor and antigen binding, respectively. 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.[1,3,4] γ-Heavy chains are truncated and unable to associate with IgG light chains in patients with the rare disease γ heavy chain disease.[5] Cayman's γ Heavy Chain (human) Monoclonal Antibody (Clone RM116) can be used for ELISA, immunocytochemistry (ICC), and immunohistochemistry (IHC) applications. The antibody recognizes γ heavy chain from human samples.

References

1. Weber, J., Peng, H., and Rader, C. From rabbit antibody repertoires to rabbit monoclonal antibodies. *Exp. Mol. Med.* **49(3)**, e305 (2017).
2. Rayner, L.E., Kadkhodayi-Kholghi, N., Heenan, R.K., *et al.* The solution structure of rabbit IgG accounts for its interactions with the Fc receptor and complement C1q and its conformational stability. *J. Mol. Biol.* **425(3)**, 506-523 (2013).
3. Vidarsson, G., Dekkers, G., and Rispens, T. IgG subclasses and allotypes: From structure to effector functions. *Front. Immunol.* **5**, 520 (2014).
4. Williams, R.C., Jr., Osterland, C.K., Margherita, S., *et al.* Studies of biologic and serologic activities of rabbit-IgG antibody depleted of carbohydrate residues. *J. Immunol.* **111(6)**, 1690-1698 (1973).
5. Bieliauskas, S., Tubbs, R.R., Bacon, C.M., *et al.* Gamma heavy-chain disease: Defining the spectrum of associated lymphoproliferative disorders through analysis of 13 cases. *Am. J. Surg. Pathol.* **36(4)**, 534-543 (2012).