

Datasheet: MCA709G

Description:	RAT ANTI HUMAN CD28
Specificity:	CD28
Format:	Purified
Product Type:	Monoclonal Antibody
Clone:	YTH913.12
Isotype:	IgG2b
Quantity:	0.2 mg

Product Details

Applications

This product has been reported to work in the following applications. This information is derived from testing within our laboratories, peer-reviewed publications or personal communications from the originators. Please refer to references indicated for further information. For general protocol recommendations, please visit www.bio-rad-antibodies.com/protocols.

	Yes	No	Not Determined	Suggested Dilution
Flow Cytometry	▪			1/25 - 1/50
Immunohistology - Frozen	▪			
Immunohistology - Paraffin			▪	
ELISA			▪	
Immunoprecipitation			▪	
Western Blotting			▪	

Where this antibody has not been tested for use in a particular technique this does not necessarily exclude its use in such procedures. Suggested working dilutions are given as a guide only. It is recommended that the user titrates the antibody for use in their own system using appropriate negative/positive controls.

Target Species	Human
Product Form	Purified IgG - liquid
Preparation	Purified IgG prepared by affinity chromatography on Protein G from tissue culture supernatant
Buffer Solution	Phosphate buffered saline
Preservative Stabilisers	0.09% Sodium Azide
Carrier Free	Yes

Approx. Protein Concentrations	IgG concentration 1.0 mg/ml
Immunogen	Human peripheral blood T-cells.
External Database Links	<p>UniProt: P10747 Related reagents</p> <p>Entrez Gene: 940 CD28 Related reagents</p>
RRID	AB_566678
Fusion Partners	Spleen cells from an immunized DA rat were fused with cells of the Y3/Ag 1.2.3 rat myeloma cell line.
Specificity	<p>Rat anti Human CD28 antibody, clone YTH913.12 recognizes human CD28, a ~44 kDa single pass type 1 trans-membrane protein expressed as a homodimer on a major subset of human T-cells (Thompson et al. 1989), responsible for activation of these cells via interaction with the TCR. CD28 is involved in the tuning of the T-cell for activation via TCR, lowering the threshold for activation from around 8000 triggered TCRs to approximately 1500 (Viola et al.1996).</p> <p>CD28 along with CD152, also known as CTLA-4 acts as a co-receptor for the co-stimulatory molecules CD80 and CD86 (Azuma et al. 1993). CD28 offers a positive stimulatory role on ligation of CD80 and CD86 while CTLA-4 offers a negative feedback signal preventing CD28 mediated T-cell activation of CD86 (Krummel et al. 1995).</p> <p>Rat anti human CD28, clone YTH913.12 has been reported to recognize an epitope of CD28 expressed by NK cells, which is not recognized by other anti human CD28 clones such as 9.3 and CD28.2 (Galea-Lauri et al 1999.) Other reports however have failed to demonstrate CD28 staining on peripheral blood derived NK cells using clone YTH913.12 (Wilson et al. 1999).</p>
Flow Cytometry	Use 10ul of the suggested working dilution to label 10 ⁶ cells or 100ul whole blood.
References	<ol style="list-style-type: none"> 1. Reiter, C. (1989) Cluster Report: CD28 in Leucocyte Typing IV: White Cell Differentiation Antigens. Edited by Knapp, W., Dorken, B., Gilks, W.R., Rieber, E.P., Schmidt, R.E., Stein, H. and von dem Borne, A.E.G.Kr. Oxford University Press. pp 352-3. 2. McLeod, J.D. <i>et al.</i> (1998) Activation of human T cells with superantigen (staphylococcal enterotoxin B) and CD28 confers resistance to apoptosis via CD95. J Immunol. 160: 2072-9. 3. Galea-Lauri, J. <i>et al.</i> (1999) Expression of a variant of CD28 on a subpopulation of human NK cells: implications for B7-mediated stimulation of NK cells. J Immunol. 163 (1): 62-70. 4. Wilson, J.L. <i>et al.</i> (1999) NK cell triggering by the human costimulatory molecules CD80 and CD86. J Immunol. 163: 4207-12.

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16. Siska, E.K. *et al.* (2017) Generation of an immortalized mesenchymal stem cell line producing a secreted biosensor protein for glucose monitoring. [PLoS One. 12 \(9\): e0185498.](#)
17. Hellberg, S. *et al.* (2021) Progesterone Dampens Immune Responses in *In Vitro* Activated CD4⁺ T Cells and Affects Genes Associated With Autoimmune Diseases That Improve During Pregnancy. [Front Immunol. 12: 672168.](#)
18. Zenere, A. *et al.* (2023) Prominent epigenetic and transcriptomic changes in CD4(+) and CD8(+) T cells during and after pregnancy in women with multiple sclerosis and controls. [J Neuroinflammation. 20 \(1\): 98.](#)

Storage This product is shipped at ambient temperature. It is recommended to aliquot and store at -20°C on receipt. When thawed, aliquot the sample as needed. Keep aliquots at 2-8°C for short term use (up to 4 weeks) and store the remaining aliquots at -20°C.

Avoid repeated freezing and thawing as this may denature the antibody. Storage in frost-free freezers is not recommended.

Guarantee 12 months from date of despatch

Health And Safety Information Material Safety Datasheet documentation #10040 available at: <https://www.bio-rad-antibodies.com/SDS/MCA709G>
10040

Related Products

Recommended Secondary Antibodies

Rabbit Anti Rat IgG (STAR16...)	DyLight®800
Rabbit Anti Rat IgG (STAR17...)	FITC
Goat Anti Rat IgG (STAR72...)	HRP
Goat Anti Rat IgG (STAR69...)	FITC
Goat Anti Rat IgG (STAR73...)	RPE
Rabbit Anti Rat IgG (STAR21...)	HRP
Goat Anti Rat IgG (MOUSE ADSORBED) (STAR71...)	DyLight®550 , DyLight®650 , DyLight®800
Goat Anti Rat IgG (STAR131...)	Alk. Phos. , Biotin

Recommended Negative Controls

[RAT IgG2b NEGATIVE CONTROL \(MCA6006GA\)](#)

North & South America	Tel: +1 800 265 7376 Fax: +1 919 878 3751 Email: antibody_sales_us@bio-rad.com	Worldwide	Tel: +44 (0)1865 852 700 Fax: +44 (0)1865 852 739 Email: antibody_sales_uk@bio-rad.com	Europe	Tel: +49 (0) 89 8090 95 21 Fax: +49 (0) 89 8090 95 50 Email: antibody_sales_de@bio-rad.com
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To find a batch/lot specific datasheet for this product, please use our online search tool at: bio-rad-antibodies.com/datasheets

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