Datasheet: MCA709EL

BATCH NUMBER 157242

Description:	RAT ANTI HUMAN CD28:Low Endotoxin
Specificity:	CD28
Format:	Low Endotoxin
Product Type:	Monoclonal Antibody
Clone:	YTH913.12
Isotype:	IgG2b
Quantity:	0.5 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	▪			1/50 - 1/100
Immunohistology - Frozen	▪			
Immunohistology - Paraffin			▪	
ELISA			▪	
Immunoprecipitation			▪	
Western Blotting			▪	
Functional Assays	▪			

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	None present

Carrier Free	Yes
Endotoxin Level	< 0.01 EU/ug
Approx. Protein Concentrations	IgG concentration 1.0 mg/ml
Immunogen	Human peripheral blood T-cells.
External Database Links	**UniProt:** P10747 Related reagents **Entrez Gene:** 940 CD28 Related reagents
RRID	AB_324531
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	**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). 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). 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).
Flow Cytometry	Use 10ul of the suggested working dilution to label 10^6 cells in 100ul.
References	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. *et al.* (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. *et al.* (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.
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13. Litjens, N.H. *et al.* (2011) Identification of Circulating Human Antigen-Reactive CD4+FOXP3+ Natural Regulatory T Cells. J Immunol. 188: 1083-90.
14. Svensson-Arvelund, J. *et al.* (2015) The human fetal placenta promotes tolerance against the semiallogeneic fetus by inducing regulatory T cells and homeostatic M2 macrophages. J Immunol. 194 (4): 1534-44.
15. Hasib, L. *et al.* (2016) Functional and homeostatic defects of regulatory T cells in patients with coronary artery disease. J Intern Med. 279 (1): 63-77.
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

Store at -20°C only.

This product should be stored undiluted.

Storage in frost-free freezers is not recommended. Avoid repeated freezing and thawing as this may denature the antibody. Should this product contain a precipitate we recommend microcentrifugation before use.

Guarantee	12 months from date of despatch
Health And Safety Information	Material Safety Datasheet documentation #10162 available at: https://www.bio-rad-antibodies.com/SDS/MCA709EL 10162
Regulatory	For research purposes only

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:Low Endotoxin (MCA6006EL)

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'M368801:200529'

Printed on 08 Mar 2024