

Datasheet: MCA709A647

Description:	RAT ANTI HUMAN CD28:Alexa Fluor® 647
Specificity:	CD28
Format:	ALEXA FLUOR® 647
Product Type:	Monoclonal Antibody
Clone:	YTH913.12
Isotype:	IgG2b
Quantity:	100 TESTS/1ml

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	■			Neat - 1/10

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 conjugated to Alexa Fluor® 647 - liquid		
Max Ex/Em	Fluorophore	Excitation Max (nm)	Emission Max (nm)
	Alexa Fluor®647	650	665
Preparation	Purified IgG prepared by affinity chromatography on Protein G from		
Buffer Solution	Phosphate buffered saline		
Preservative	0.09% Sodium Azide		
Stabilisers	1% Bovine Serum Albumin		
Approx. Protein Concentrations	IgG concentration 0.05 mg/ml		
Immunogen	Human peripheral blood T-cells		
External Database Links	UniProt: P10747 Related reagents Entrez Gene:		

Fusion Partners	Spleen cells from an immunised 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 or 100ul human whole blood.
References	- 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. - 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. - Gabdoukhakova, A. <i>et al.</i> (2007) High rate of mutation reporter gene inactivation during human T cell proliferation. Immunogenetics. 59: 135-43. - Pridgeon, C. <i>et al.</i> (2011) Regulation of IL-17 in chronic inflammation in the human lung. Clin Sci (Lond). 120: 515-24. - Blanco, B. <i>et al.</i> (2003) Induction of human T lymphocyte cytotoxicity and inhibition of tumor growth by tumor-specific diabody-based molecules secreted from gene-modified bystander cells. J Immunol. 171: 1070-7. - Costa, C. <i>et al.</i> (2002) Human NK cell-mediated cytotoxicity triggered by CD86 and Gal alpha 1,3-Gal is inhibited in genetically modified porcine cells. J Immunol. 168: 3808-16. - Litjens, N.H. <i>et al.</i> (2011) Identification of Circulating Human Antigen-Reactive CD4+FOXP3+ Natural Regulatory T Cells. J Immunol. 188: 1083-90. - Goodier, M.R. and Londei, M. (2004) CD28 is not directly involved in the response of human CD3- CD56+ natural killer cells to lipopolysaccharide: a role for T cells. Immunology. 111: 384-90. - Wilson, J.L. <i>et al.</i> (1999) NK cell triggering by the human costimulatory molecules CD80 and CD86. J Immunol. 163: 4207-12. - Kropf, P. <i>et al.</i> (2007) Arginase activity mediates reversible T cell hyporesponsiveness in human pregnancy. Eur J Immunol. 37: 935-45. - Ponchel, F. <i>et al.</i> (2002) Dysregulated lymphocyte proliferation and differentiation in patients with rheumatoid arthritis. Blood. 100: 4550-6. - 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. - Svensson-Arvelund, J. <i>et al.</i> (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.

14. 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.](#)
15. 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.](#)

Storage	Store at +4°C or at -20°C if preferred. This product should be stored undiluted. Storage in frost-free freezers is not recommended. This product is photosensitive and should be protected from light. Avoid repeated freezing and thawing as this may denature the antibody. Should this product contain a precipitate we recommend microcentrifugation before use.
Shelf Life	18 months from date of despatch.
Acknowledgements	This product is provided under an intellectual property licence from Life Technologies Corporation. The transfer of this product is contingent on the buyer using the purchase product solely in research, excluding contract research or any fee for service research, and the buyer must not sell or otherwise transfer this product or its components for (a) diagnostic, therapeutic or prophylactic purposes; (b) testing, analysis or screening services, or information in return for compensation on a per-test basis; (c) manufacturing or quality assurance or quality control, or (d) resale, whether or not resold for use in research. For information on purchasing a license to this product for purposes other than as described above, contact Life Technologies Corporation, 5791 Van Allen Way, Carlsbad CA 92008 USA or outlicensing@thermofisher.com
Health And Safety Information	Material Safety Datasheet documentation #10041 available at: 10041: https://www.bio-rad-antibodies.com/uploads/MSDS/10041.pdf
Regulatory	For research purposes only

Related Products

Recommended Negative Controls

[RAT IgG2b NEGATIVE CONTROL:Alexa Fluor® 647 \(MCA6006A647\)](#)

Recommended Useful Reagents

[HUMAN SEROBLOCK \(BUF070A\)](#)

[HUMAN SEROBLOCK \(BUF070B\)](#)

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