Datasheet: MCA709SBV475

Description:	RAT ANTI HUMAN CD28:StarBright Violet 475
Specificity:	CD28
Format:	StarBright Violet 475
Product Type:	Monoclonal Antibody
Clone:	YTH913.12
Isotype:	IgG2b
Quantity:	100 TESTS/0.5ml

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

Where this product 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 product for use in their own system using appropriate negative/positive controls.

Target Species

Human

Product Form

Purified IgG conjugated to StarBright Violet 475 - liquid

Max Ex/Em

Fluorophore	Excitation Max (nm)	Emission Max (nm)
StarBright Violet 475	405	479

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 (NaN_3)
1% Bovine Serum Albumin
0.1% Pluronic F68
0.1% PEG 3350
0.05% Tween 20

Immunogen	Human peripheral blood T-cells.
External Database Links	**UniProt:** P10747 Related reagents **Entrez Gene:** 940 CD28 Related reagents
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 5ul of the suggested working dilution to label 10^6 cells in 100ul. Best practices suggest a 5 minutes centrifugation at 6,000g prior to sample application.
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. 4. Wilson, J.L. *et al.* (1999) NK cell triggering by the human costimulatory molecules CD80 and CD86. J Immunol. 163: 4207-12. 5. Costa, C. *et al.* (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. 6. Ponchel, F. *et al.* (2002) Dysregulated lymphocyte proliferation and differentiation in patients with rheumatoid arthritis. Blood. 100: 4550-6.

7. Blanco, B. *et al.* (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.
8. Johnston, A. *et al.* (2004) Peripheral blood T cell responses to keratin peptides that share sequences with streptococcal M proteins are largely restricted to skin-homing CD8(+) T cells. Clin Exp Immunol. 138 (1): 83-93.
9. 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.
10. Kropf, P. *et al.* (2007) Arginase activity mediates reversible T cell hyporesponsiveness in human pregnancy. Eur J Immunol. 37: 935-45.
11. Gabdoulkhakova, A. *et al.* (2007) High rate of mutation reporter gene inactivation during human T cell proliferation. Immunogenetics. 59: 135-43.
12. Pridgeon, C. *et al.* (2011) Regulation of IL-17 in chronic inflammation in the human lung. Clin Sci (Lond). 120: 515-24.
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 +4°C. DO NOT FREEZE. This product should be stored undiluted.
Guarantee	12 months from date of despatch
Acknowledgements	This product is covered by U.S. Patent No. 10,150,841 and related U.S. and foreign counterparts
Health And Safety Information	Material Safety Datasheet documentation #20471 available at: https://www.bio-rad-antibodies.com/SDS/MCA709SBV475 20471
Regulatory	For research purposes only

Related Products

Recommended Useful Reagents

HUMAN SEROBLOCK (BUF070A)
HUMAN SEROBLOCK (BUF070B)

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

To find a batch/lot specific datasheet for this product, please use our online search tool at: bio-rad-antibodies.com/datasheets
'M389976:210817'

Printed on 08 Mar 2024