

GMP Ultra-LEAF™ Biotin anti-human CD28 SF Antibody

Catalog# / Size	302977 / 100 µg 302978 / 1 mg
Clone	CD28.2
Other Names	T44, Tp44
Isotype	Mouse IgG1, κ
Description	<p>CD28 is a 44 kD disulfide-linked homodimeric type I glycoprotein. It is a member of the immunoglobulin superfamily and is also known as T44 or Tp44. CD28 is expressed on most T lineage cells, NK cell subsets, and plasma cells. CD28 binds both CD80 and CD86 using a highly conserved motif MYPPY in the CDR3-like loop. CD28 is considered a major costimulatory molecule, inducing T lymphocyte activation and IL-2 synthesis, and preventing cell death. In vitro studies indicate that ligation of CD28 on T cells by CD80 and CD86 on antigen presenting cells provides a costimulatory signal required for T cell activation and proliferation.</p> <p>GMP Ultra-LEAF™ Biotin anti-human CD28 SF Antibody was GMP manufactured under serum-free conditions including serumfree hybridoma cell culture, without additional animal or humanderived materials or preservatives. This antibody contains ultra-low levels of endotoxin (<0.01EU/µg of protein), is filtered through a 0.1 µm membrane, and is tested negative for mycoplasma and microbial growths.</p> <p>GMP Ultra-LEAF™ Biotin anti-human CD28 SF Antibody is for research use only. Please inquire any additional application right by contacting BioLegend.</p>

Product Details

Reactivity	Human
Antibody Type	Monoclonal
Host Species	Mouse
Formulation	0.1 µm filtered in phosphate-buffered solution, pH 7.2, containing no preservative. Endotoxin level is < 0.01 EU/µg of the protein (< 0.001 ng/µg of the protein) as determined by the LAL test.
Preparation	The Ultra-LEAF™ (Low Endotoxin, Azide-Free) antibody was purified by affinity chromatography.
Concentration	1.0 mg/mL
Storage & Handling	The antibody solution should be stored undiluted between 2°C and 8°C. This Ultra-LEAF™ solution contains no preservative; handle under aseptic conditions.
Application	FC - Quality tested Activation - Verified
Recommended Usage	Each lot of this antibody is quality control tested by immunofluorescent staining with flow cytometric analysis . For flow cytometric staining, the suggested use of this reagent is ≤ 0.5 µg per million cells in 100 µL volume. It is recommended that the reagent be titrated for optimal performance for each application.
Application Notes	GMP Ultra-LEAF™ Biotin anti-human CD28 SF Antibody (Endotoxin < 0.01 EU/µg, Azide-Free, 0.1 µm filtered) is recommended for highly sensitive assays. The antibody was GMP manufactured under serum-free conditions including serum-free hybridoma cell culture, without additional animal or human-derived materials or preservatives. This antibody is intended for flow cytometry and for research use only.
Additional Product Notes	<p>This antibody is intended for flow cytometry and activation/expansion of T cells for research use only. Please inquire any additional application right by contacting BioLegend.</p> <p>For plate coating protocols, CD28.2 antibody (Cat. No. 302977/302978) can be used at 1 µg/mL in PBS in combination with 1 µg/mL of Biotin anti-human CD3 antibody (Cat. No. 317358) to efficiently activate T cells. Plates should be coated for 2 hours in a tissue culture incubator or overnight at 4°C. For soluble antibody activation protocols, we recommend 10 µg/mL of antihuman CD3 (Cat. No. 317358) antibody and 5 µg/mL of anti-human CD28 antibody (Cat. No. 302977/302978).</p>

RRID AB_3068056 (BioLegend Cat. No. 302977)
AB_3068056 (BioLegend Cat. No. 302978)

Disclaimer **GMP Ultra-LEAF™ antibodies.** BioLegend GMP Ultra-LEAF™ antibodies are manufactured in a dedicated GMP facility and compliant with ISO 13485:2016. For research use only. Not for use in diagnostic or therapeutic procedures. Our processes include:

- Batch-to-batch consistency
- Material traceability
- Documented procedures
- Documented employee training
- Equipment maintenance and monitoring records
- Lot-specific certificates of analysis
- Quality audits per ISO 13485:2016
- QA review of released products

BioLegend GMP Ultra-LEAF™ antibodies are manufactured and tested in accordance with USP Chapter 1043, Ancillary Materials for Cell, Gene and Tissue-Engineered Products and Ph. Eur. Chapter 5.2.12

Antigen Details

Structure	Ig superfamily, type I transmembrane glycoprotein, homodimer, 44 kD
Distribution	Mature T cells, thymocytes, NK cell subsets, plasma cells, EBVpositive B cells
Function	T cell costimulation
Ligand/Receptor	CD80/CD86
Cell Type	B cells, NK cells, Plasma cells, T cells, Thymocytes, Tregs
Biology Area	Costimulatory Molecules, Immunology
Molecular Family	CD Molecules
Antigen References	<ol style="list-style-type: none">1. Schlossman S, <i>et al.</i> Eds. 1995. Leucocyte Typing V. Oxford University Press. New York.2. June CH, <i>et al.</i> 1994. <i>Immunol Today</i>. 15:321-31.3. Linskey PS and Ledbetter JA. 1993. <i>Annu Rev Immunol</i>. 11:191-212.
Gene ID	940

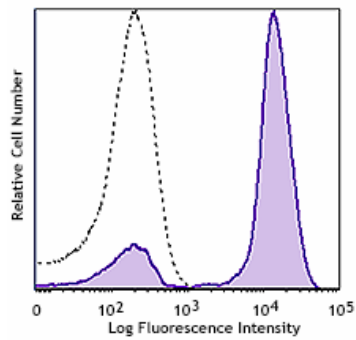
Related Protocols

[Cell Surface Flow Cytometry Staining Protocol](#)

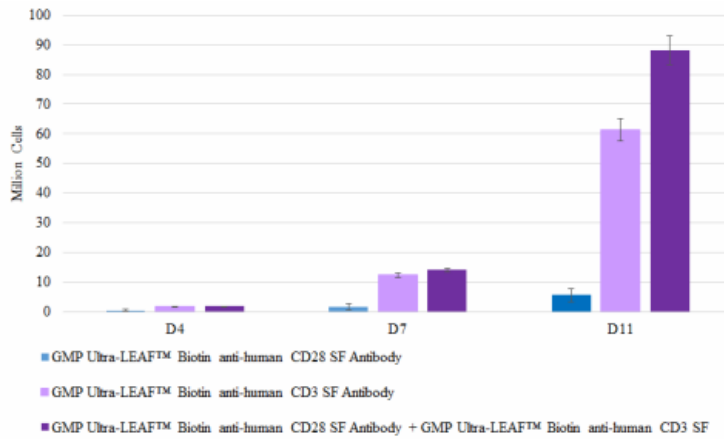
Other Formats

APC anti-human CD28, Biotin anti-human CD28, FITC anti-human CD28, PE anti-human CD28, PE/Cyanine5 anti-human CD28, Purified anti-human CD28, Alexa Fluor® 488 anti-human CD28, Alexa Fluor® 700 anti-human CD28, PerCP/Cyanine5.5 anti-human CD28, Pacific Blue™ anti-human CD28, PE/Cyanine7 anti-human CD28, Ultra-LEAF™ Purified anti-human CD28, Brilliant Violet 421™ anti-human CD28, Brilliant Violet 510™ anti-human CD28, Purified anti-human CD28 (Maxpar® Ready), PE/Dazzle™ 594 anti-human CD28, Brilliant Violet 785™ anti-human CD28, Brilliant Violet 650™ anti-human CD28, Brilliant Violet 711™ anti-human CD28, APC/Fire™ 750 anti-human CD28, Alexa Fluor® 647 anti-human CD28, TotalSeq™-A0386 anti-human CD28, TotalSeq™-B0386 anti-human CD28, TotalSeq™-C0386 anti-human CD28, Brilliant Violet 605™ anti-human CD28, APC/Cyanine7 anti-human CD28, Brilliant Violet 750™ anti-human CD28, PE/Fire™ 810 anti-human CD28, GMP PE anti-human CD28, TotalSeq™-D0386 anti-human CD28, Spark Violet™ 423 anti-human CD28, GMP Ultra-LEAF™ Purified anti-human CD28 SF, GMP APC anti-human CD28, GMP Ultra-LEAF™ Biotin anti-human CD28 SF, Spark Blue™ 515 anti-human CD28

Product Data



Human peripheral lymphocytes were stained with GMP Ultra-LEAF™ Biotin anti-human CD28 SF antibody (clone CD28.2) (filled histogram) or isotype control (clone MOPC-21) (open histogram), followed by Streptavidin-PE stain.



PBMC-derived T cells were activated in the presence of GMP Ultra-LEAF™ Biotin anti-human CD28 SF antibody (Cat. No. 302978) alone, GMP Ultra-LEAF™ Biotin anti-human CD3 SF antibody (Cat. No. 317358) alone, or the combination of both antibodies (Cat. No. 302978 and 317358) for a period of 4 days. Activation was done via plate coating, with 1 µg/mL of each antibody. Cells were cultured for a total of 11 days and viable cell number was determined.

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