Human CD28 GMP Antibody

Recombinant Monoclonal Human IgG_1 Clone # 29704-1

Catalog Number: MAB11412-GMP

DESCRIPTION

Species Reactivity	Human
Specificity	Detects human CD28 in direct ELISAs
Source	Mouse monoclonal antibody, 15E8 clone, reformatted to human IgG1 isotype Produced recombinantly from a stable HEK293 cell line Manufactured and tested under cGMP guidelines
Purification	Protein G purified from cell culture supernatant
Immunogen	Human T lymphocytes
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

SPECIFICATIONS

Purity	≥95%, by SDS-PAGE with quantitative densitometry by Coomassie® Blue Staining.
Endotoxin Level	<0.10 EU per 1 µg of the antibody by the LAL method.
Host Cell Protein	≤0.500 ng per µg of antibody when tested by ELISA
Host Cell DNA	≤0.0100 ng per µg of antibody when tested by PCR
Mycoplasma	Negative when tested in a ribosomal RNA hybridization assay
Activity	Measured by its ability to induce IL-2 secretion by Jurkat human acute T cell leukemia cells. Freeman, G.J. *et al.* (1993) Science **262**:909. The ED_{50} for this effect is 5.00-50.0 ng/mL
Aggregation	≤10% aggregation when tested by SEC

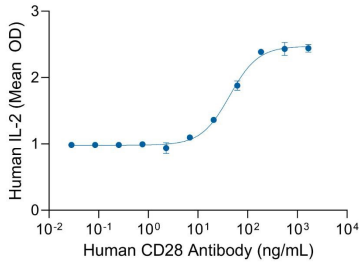
APPLICATIONS

Please Note: *Optimal dilutions should be determined by each laboratory for each application. General Protocols are available in the Technical Information section on our website.*

	Recommended Concentration	Sample
T Cell Stimulation	3 µg/mL	Human PBMCs

DATA

T Cell Stimulation



Recombinant Human CD28 GMP Antibody Enhances IL-2 Secretion in Jurkat Cells. Human CD28 recombinant antibody enhances IL-2 secretion in Jurkat cells (immortalized human T cell line) treated with 5 ng/mL phorbol myristate acetate (PMA) and 0.9 µM calcium ionomycin. Antibody-mediated stimulation occurred in a dose-dependent manner, as measured using the Quantikine Human IL-2 ELISA kit. The ED_{50} for this effect is 5.00-50.0 ng/mL.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 0.5 mg/mL in sterile PBS.
Shipping	The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • A minimum of 12 months when stored at ≤ -20 °C, as supplied. Refer to lot specific COA for the Use by Date. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 6 months, ≤ -20 °C under sterile conditions after reconstitution.

BACKGROUND

The Bio-Techne CD28 GMP antibody is derived from the 15e8 clone. CD28 is a critical protein expressed on the surface of T cells that provides a co-stimulatory signal necessary for T cell activation and proliferation. CD28 is structurally similar to CTLA-4, with both molecules exhibiting structural homology to the immunoglobulin (Ig) gene superfamily. CD28 and CTLA-4, together with their ligands, B7-1 and B7-2, constitute one of the dominant co-stimulatory pathways that regulate T and B cell responses. Both CD28 and CTLA-4 are composed of a single Ig V-like extracellular domain, a transmembrane domain, and an intracellular domain. CD28 and CTLA-4 are both expressed on the cell surface as disulfide-linked homodimers or as monomers. The genes encoding these two molecules are closely linked on human chromosome 2.

Bio-Techne®
Global | bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL: 1.612.379.2956
USA | TEL: 800.343.7475 Canada | TEL: 855.668.8722 Europe | Middle East | Africa TEL: +44.0.1235.529449
China | info.cn@bio-techne.com TEL: 400.821.3475

MANUFACTURING SPECIFICATIONS

GMP Antibodies

R&D Systems, a Bio-Techne Brand's GMP Antibodies are produced according to relevant sections of the following documents: USP Chapter 1043, Ancillary Materials for Cell, Gene and Tissue-Engineered Products, and Eu. Ph. 5.2.12, Raw Materials of Biological Origin for the Production of Cell-based and Gene Therapy Medicinal Products.

R&D Systems' quality focus includes:

- Manufactured and tested under an ISO 9001:2015 and ISO 13485:2016 certified quality system
- Documented processes and QA control of documentation and process changes
- Personnel training programs
- Raw material inspection and supplier qualification/monitoring
- Fully validated equipment, processes and test methods
- Equipment calibration monitored and scheduled using a computerized calibration program
- Facility maintenance, safety programs and pest control
- Variances dispositioned using material review process
- Robust product stability program

R&D Systems strives to provide our customers with the analytical characteristics of each product so that customers may determine whether our products are appropriate for their research. The Certificate of Analysis provided contains the following lot specific information:

- Purity (SDS-PAGE)
- Aggregation (SEC)
- Endotoxin (LAL method, tested per USP<85> and Ph. Eur. 2.6.14 guidelines)
- Residual Host Cell Protein and Host Cell DNA
- Mycoplasma testing
- Post-bottling lot-specific bioassay results (compliance with an established range) and results of microbial testing according to USP <71>

Additional testing and documentation requested by the customer can be arranged at an additional cost.

Production records and facilities are available for examination by appropriate personnel on-site at R&D Systems in Minneapolis, Minnesota USA.

R&D Systems sells GMP grade products for preclinical or clinical *ex vivo* use. They are not for *in vivo* use. Please read the following End User Terms prior to using this product.

Bio-Techne®
Global | bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL: 1.612.379.2956
USA | TEL: 800.343.7475 Canada | TEL: 855.668.8722 Europe | Middle East | Africa TEL: +44.0.1235.529449
China | info.cn@bio-techne.com TEL: 400.821.3475

PRODUCT SPECIFIC NOTICES

END USER TERMS OF USE OF PRODUCT

The following terms are offered to you upon your acceptance of these End User Terms of Use of Product. By using this product, you indicate your acknowledgment and agreement to these End User Terms of Use of Product. If you do not agree to be bound by and comply with all of the provisions of these End User Terms of Use of Product, you should contact your supplier of the product and make arrangements to return the product.

We suggest you print and retain a copy of these End User Terms of Use of Product for your records.

The End User is aware that R&D Systems, Inc. sells GMP products for preclinical or clinical *ex vivo* use and not for *in vivo* use. The End User further agrees, as a condition of the sale of R&D Systems' GMP products that: a) the End User will not use this GMP Product in any procedure wherein the product may be directly or indirectly administered to humans, unless the End User has obtained, or prior to their use will have obtained, an Investigational New Drug (IND) exemption from the FDA and will use the product only in accordance with the protocols of such IND and of the Institutional Review Board overseeing the proposed research, or b) the End User will use the products outside of the United States in accordance with the protocols of research approved by the Institutional Review Board or authorized ethics committee and regulatory agencies to which the End User is subject to in their territory.

R&D Systems, Inc. has the right, at its sole discretion, to modify, add or remove any terms or conditions of these End User Terms of Use without notice or liability to you. Any changes to these End User Terms of Use are effective immediately following the printing of such changes on this product insert. The most recent version of these End User Terms of Use of Product may be found at: bio-techne.com/terms-and-conditions.

You agree to review these End User Terms of Use of Product to ensure any subsequent use by you of R&D Systems' GMP Products following changes to these End User Terms of Use of Product constitutes your acceptance of all such changes.

TERMS AND CONDITIONS

The following limitation applies to R&D Systems' warranty and liability for damages: All products are warranted to meet R&D Systems' published specifications when used under normal laboratory conditions.

R&D SYSTEMS DOES NOT MAKE ANY OTHER WARRANTY OR REPRESENTATION WHATSOEVER, WHETHER EXPRESS OR IMPLIED, WITH RESPECT TO ITS PRODUCTS. IN PARTICULAR, R&D SYSTEMS DOES NOT MAKE ANY WARRANTY OF SUITABILITY, NONINFRINGEMENT, MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

NOTWITHSTANDING ANY OTHER PROVISIONS OF THESE TERMS AND/OR ANY OTHER AGREEMENT BETWEEN R&D SYSTEMS AND PURCHASER FOR THE PURCHASE OF THE PRODUCTS, R&D SYSTEMS' TOTAL LIABILITY TO PURCHASER ARISING FROM OR IN RELATION TO THESE TERMS, AN AGREEMENT BETWEEN THE PARTIES OR THE PRODUCTS, WHETHER ARISING IN CONTRACT, TORT OR OTHERWISE SHALL BE LIMITED TO THE TOTAL AMOUNT PAID BY PURCHASER TO R&D SYSTEMS FOR THE APPLICABLE PRODUCTS. IN NO EVENT WILL R&D SYSTEMS BE LIABLE FOR THE COST OF PROCUREMENT OF SUBSTITUTE GOODS.

The most recent version of these End User Terms of of Product may be found at: bio-techne.com/terms-and-conditions.

Bio-Techne®
Global | bio-techne.com info@bio-techne.com techsupport@bio-techne.com TEL: 1.612.379.2956
USA | TEL: 800.343.7475 Canada | TEL: 855.668.8722 Europe | Middle East | Africa TEL: +44.0.1235.529449
China | info.cn@bio-techne.com TEL: 400.821.3475