# Human IL-2 Antibody

Monoclonal Mouse $IgG_1$ Clone # 1019308

Catalog Number: MAB103561

## DESCRIPTION

| | |
|---|---|
| **Species Reactivity** | Human |
| **Specificity** | Detects human IL-2 in direct ELISA. |
| **Source** | Monoclonal Mouse $IgG_1$ Clone # 1019308 |
| **Purification** | Protein A or G purified from cell culture supernatant |
| **Immunogen** | *E. coli*-derived human IL-2<br>Ala21-Thr153<br>Accession # P60568 |
| **Formulation** | Lyophilized from a 0.2 μm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.<br>*Small pack size (-SP) is supplied either lyophilized or as a 0.2 μm filtered solution in PBS. |

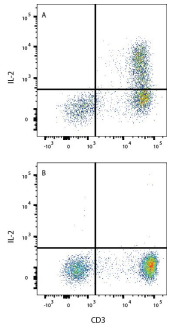
## APPLICATIONS

**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 |
|---|---|---|
| **Intracellular Staining by Flow Cytometry** | 0.25 µg/$10^6$ cells | PBMC stimulated with 1 µg/mL of aCD3 and 3 ug/ml of aCD28 for 2 days were treated with Tocris cell activation cocktail 500x (Catalog # 5476) and Brefeldin A (Catalog # 1231/5) for 3 hours or naïve PBMC lymphocytes. |

## DATA

### Intracellular Staining by Flow Cytometry




**Detection of IL-2 in PBMC cells by Flow Cytometry.** PBMC stimulated with 1 ug/ml of aCD3 and 3 ug/ml of aCD28 for 2 days were treated with Tocris cell activation cocktail 500x (Catalog # 5476) and Brefeldin A (Catalog # 1231/5) for 3 hours (A) or naïve PBMC lymphocytes (B) were stained with Mouse Anti-Human IL-2 Monoclonal Antibody (Catalog # MAB103561) and Mouse Anti-Human CD3ε PE-conjugated Monoclonal Antibody (Catalog # FAB100P).To facilitate intracellular staining, cells were fixed and permeabilized with Flow Cytometry Fixation Buffer (Catalog # FC004). View our protocol for Staining Intracellular Molecules.

## PREPARATION AND STORAGE

| | |
|---|---|
| **Reconstitution** | Reconstitute at 0.5 mg/mL in sterile PBS. |
| **Shipping** | The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.<br>*Small pack size (-SP) is shipped with polar packs. Upon receipt, store it immediately at -20 to -70 °C |
| **Stability & Storage** | **Use a manual defrost freezer and avoid repeated freeze-thaw cycles.**<br>• 12 months from date of receipt, -20 to -70 °C as supplied.<br>• 1 month, 2 to 8 °C under sterile conditions after reconstitution.<br>• 6 months, -20 to -70 °C under sterile conditions after reconstitution. |



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## BACKGROUND

Recombinant Interleukin-2 (IL-2) is expressed in E. coli and has been engineered to contain the serine for cysteine substitution found in Proleukin® (aldesleukin). Recombinant IL-2 is widely used in cell culture for the expansion of T cells. IL-2 is expressed by CD4+ and CD8+ T cells, γδ T cells, B cells, dendritic cells, and eosinophils (1-3). Mature human IL-2 shares 56% and 66% amino acid (aa) sequence identity with mouse and rat IL-2, respectively. Human and mouse IL-2 exhibit cross-species activity (4). The receptor for IL-2 consists of three subunits that are present on the cell surface in varying preformed complexes (5-7). The 55 kDa IL-2 Rα is specific for IL-2 and binds with low affinity. The 75 kDa IL-2 Rβ, which is also a component of the IL-15 receptor, binds IL-2 with intermediate affinity. The 64 kDa common gamma chain γc/IL-2 Rγ, which is shared with the receptors for IL-4, -7, -9, -15, and -21, does not independently interact with IL-2. Upon ligand binding, signal transduction is performed by both IL-2 Rβ and γc.

IL-2 is best known for its autocrine and paracrine activity on T cells. It drives resting T cells to proliferate and induces IL-2 and IL-2 Rα synthesis (1, 2). It contributes to T cell homeostasis by promoting the Fas-induced death of naïve CD4+ T cells but not activated CD4+ memory lymphocytes (8). IL-2 plays a central role in the expansion and maintenance of regulatory T cells, although it inhibits the development of Th17 polarized cells (9-11). Thus, IL-2 may be a key cytokine in the natural suppression of autoimmunity (12, 13).

IL-2 expression and concentration can have either immunostimulatory effects at high doses or immunosuppressive effects at low doses due to its preferential binding to different receptor subunits expressed by various immune cell types. This has led to the generation of recombinant IL-2 variants aimed at modifying IL-2 receptor binding for increased antitumor efficacy (14, 15). These variants are typically used in combination with immune checkpoint inhibitors instead of as a monotherapy (14). IL-2 can be genetically engineered to express in NK cells for CAR T cell therapies, and in combination with other cytokines like IL-15, can increase cell viability and proliferation (16). In addition to adoptive cell transfer and checkpoint blockade inhibitors, cancer vaccines that boost immune responses have been combined with IL-2 treatment with promising results in recent studies (15).

In cell culture, IL-2 is a frequently used cytokine for the proliferation, differentiation, and increased antibody secretion of B cells as they transform into plasma cells *in vitro* (17). IL-2 is also a classically used cytokine for the expansion of NK cells, early differentiated T cells and effector memory Treg cells for adoptive cell transfer cancer immunotherapy (16, 18). GMP IL-2 is a commonly used supplement for the expansion of these cell types for cellular therapies.

**References:**

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