Sterile

#8907

Human Interleukin-2 (hIL-2)

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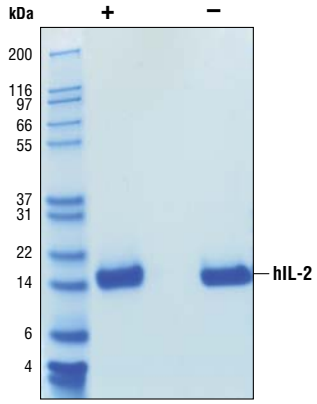
For Research Use Only. Not For Use In Diagnostic Procedures.

Source: Recombinant human IL-2 (hIL-2) Ala21-Thr153 (Accession #NM_000586) was produced in *E. coli* at Cell Signaling Technology.

Molecular Characterization: Recombinant hIL-2 does not have a Met on the amino terminus and has a calculated MW of 15,418. DTT-reduced and non-reduced protein migrate as 14 kDa polypeptides with non-reduced protein having slightly greater mobility due to an intramolecular cystine. The expected amino-terminal APTSS of recombinant hIL-2 was verified by amino acid sequencing.

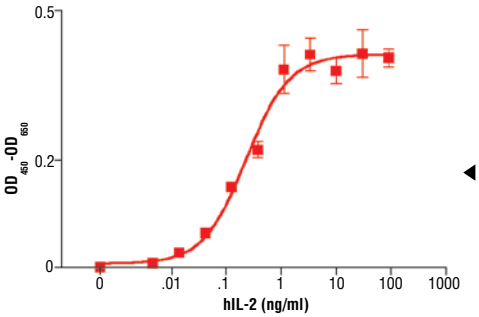
Endotoxin: Less than 0.01 ng endotoxin/1 μg hIL-2.

Purity: >98% as determined by SDS-PAGE of 6 μg reduced (+) and non-reduced (-) recombinant hIL-2. All lots are greater than 98% pure.

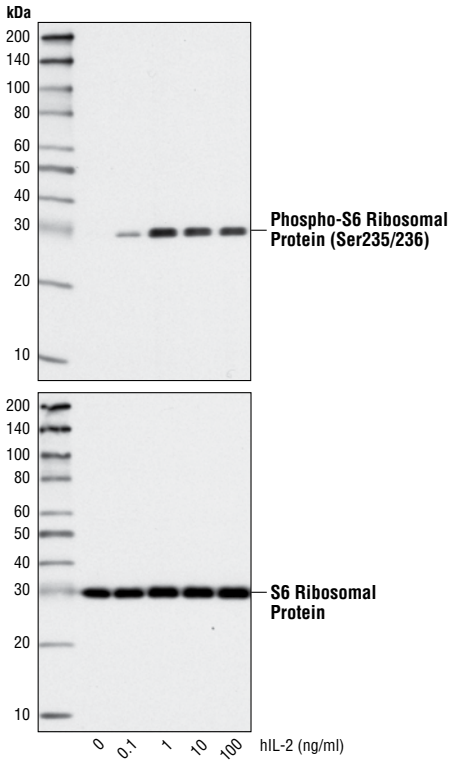


The purity of recombinant hIL-2 was determined by SDS-PAGE of 6 μg reduced (+) and non-reduced (-) recombinant hIL-2 and staining overnight with Coomassie Blue.

Bioactivity: The bioactivity of recombinant hIL-2 was determined in a CTLL-2 cell proliferation assay. The ED_{50} of each lot is between 0.1-1.0 ng/ml.



◀ *The proliferation of CTLL-2 cells treated with increasing concentrations of hIL-2 was assessed. After 48 hours treatment with hIL-2, cells were incubated with a tetrazolium salt and the OD_{450} - OD_{650} was determined.*



Western blot analysis of extracts from CTLL-2 cells, untreated or treated with hIL-2 for 20 minutes, using Phospho-S6 Ribosomal Protein (Thr235/236)(2F9) Rabbit mAb #4856 (upper) or S6 Ribosomal Protein (5G10) Rabbit mAb #2217 (lower).

Formulation: With carrier: Lyophilized from a 0.22 μm filtered solution of PBS, pH 7.2 containing 20 μg BSA per 1 μg hIL-2.

Carrier free: Lyophilized from a 0.22 μm filtered solution of PBS, pH 7.2.

Reconstitution:
With carrier: Add sterile PBS or PBS containing 1% bovine or human serum albumin or 5-10% FBS to a final hIL-2 concentration of greater than 50 μg/ml. Solubilize for 30 minutes at room temperature with occasional gentle vortexing.

Carrier free: Add sterile PBS or PBS containing protein to minimize absorption of hIL-2 to surfaces. Solubilize for 30 minutes at room temperature with occasional gentle vortexing. Stock hIL-2 should be greater than 50 μg/ml.

Storage: Stable in lyophilized state at -20°C for 1 year after receipt. Sterile stock solutions reconstituted with carrier protein are stable at 4°C for 2 months and at -20°C for 6 months. Avoid repeated freeze-thaw cycles.

Maintain sterility. Storage at -20°C should be in a manual defrost freezer.

Applications: Optimal concentration for the desired application should be determined by the user.

Background: IL-2 is a T cell stimulatory cytokine best known for inducing T cell proliferation and NK cell proliferation and activation (1,2). IL-2 also promotes peripheral development of Treg cells (4, 5). Conversely, IL-2 is involved in activation induced cell death (AICD) that is observed post T cell expansion by increasing levels of Fas on CD4+ T cells (3). The effects of IL-2 are mediated through a trimeric receptor complex consisting of IL-2Rα, IL-2Rβ and the common gamma chain, γc (1,2). IL-2 Rα binds exclusively to IL-2 with low affinity and increases binding affinity of the whole receptor complex including IL-2Rβ and γc subunits. IL-2Rβ is also used by IL-15 (1,2). The common γc is used by other cytokines including IL-4, IL-7, IL-9, IL-15, and IL-21 (1,2). Binding of IL-2 initiates signaling cascades involving Jak1, Jak3, Stat5 and the PI3K/Akt pathways (1,2).

Background References:

(1) Ma, A. et al. (2006) *Annu Rev Immunol* 24, 657–79.

(2) Gaffen, S.L. and Liu, K.D. (2004) *Cytokine* 28, 109–23.

(3) Jaleco, S. et al. (2003) *J Immunol* 171, 61–8.

(4) Fehérvari, Z. et al. (2006) *Trends Immunol* 27, 109–11.

(5) Antony, P.A. et al. (2006) *J Immunol* 176, 5255–66.