Sterile

#8931

Human Interleukin-22 (hIL-22)

Cell Signaling TECHNOLOGY®

Orders ■ 877-616-CELL (2355)
orders@cellsignal.com
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info@cellsignal.com
Web ■ www.cellsignal.com

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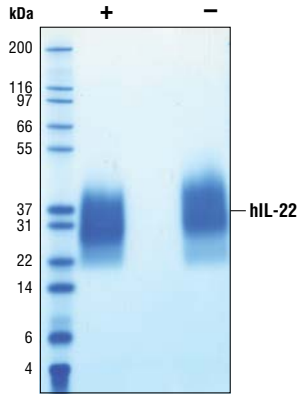
Source: Recombinant human IL-22 (hIL-22) Ala34-Ile179 (Accession #NP_065386) was expressed in human 293 cells at Cell Signaling Technology.

Molecular Characterization: Recombinant hIL-22 contains no "tags" and the nonglycosylated protein has a calculated MW of 16,749. DTT-reduced and non-reduced protein migrate as 34 kDa polypeptides. Lower mobility and heterogeneity in SDS PAGE are due to glycosylation. The expected amino-terminal APISS of recombinant hIL-22 was verified by amino acid sequencing.

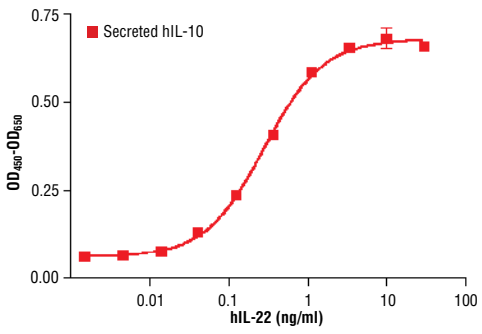
Endotoxin: Less than 0.01 ng endotoxin/1µg hIL-22.

Purity: >98% as determined by SDS-PAGE of 6 µg reduced (+) and non-reduced (-) recombinant hIL-22. All lots are greater than 98% pure.

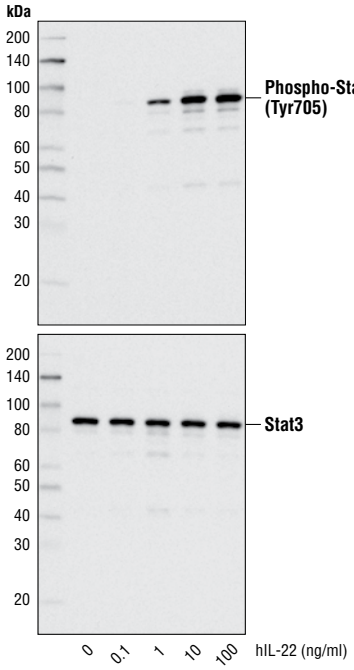


The purity of recombinant hIL-22 was determined by SDS-PAGE of 6 µg reduced (+) and non-reduced (-) recombinant hIL-22 and staining overnight with Coomassie Blue.

Bioactivity: The bioactivity of recombinant IL-22 was determined by its ability to induce IL-10 production by COLO 205 cells. The ED_{50} of each lot is between 100-300 pg/ml.



◀ *The production of IL-10 by COLO 205 cells cultured with increasing concentrations of hIL-22 was assessed. Media from the cells incubated with hIL-22 for 48 hours was collected and assayed for IL-10 by ELISA and the OD_{450}-OD_{650} was determined.*



Western blot analysis of extracts from COLO 205 cells, untreated or treated with hIL-22 for 15 minutes, using Phospho-Stat3 (Tyr705) (D3A7) XP™ Rabbit mAb #9145 (upper) or Stat3 Antibody #9132 (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-22.

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-22 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-22 to surfaces. Solubilize for 30 minutes at room temperature with occasional gentle vortexing. Stock hIL-22 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-22, a member of the IL-10 family (1,2), is expressed by Th17 CD4+ T cells, activated T cells, Th1 cells and NK cells (3). IL-22 induces proinflammatory responses, drives production of antimicrobial peptides, and is involved in tissue-repair and wound-healing responses (1). The IL-22 receptor is a heterodimer of IL-22R1 and IL-10R2 (4). Expression of IL-22R is restricted to tissue-resident cells, particularly those of epithelial origin, whereas the IL-10R2 chain is expressed in many more cell types. IL-22 induces phosphorylation of Jak1 and Tyk2, leading to activation of Stat3 and, to a lesser extent, Stat1 and Stat5 (1). IL-22 responses can involve activation of the MEK-ERK-RSK, JNK-SAPK, and p38 pathways (1). Elevated levels of IL-22 have been associated with Crohn's disease and rheumatoid arthritis. IL-22 plays an essential role in host response to the pulmonary pathogen *Klebsiella pneumoniae* (5).

Background References:

(1) Ouyang, W. et al. (2008) *Immunity* 28, 454-67.

(2) Dumoutier, L. et al. (2000) *Proc Natl Acad Sci U S A* 97, 10144-9.

(3) Takatori, H. et al. (2008) *Mod Rheumatol* 18, 533-41.

(4) Nagalakshmi, M.L. et al. (2004) *Int Immunopharmacol* 4, 679-91.

(5) Aujla, S.J. et al. (2008) *Nat Med* 14, 275-81.