

DESCRIPTION

Source *E. coli*-derived human IL-3 protein
Ala20-Phe152, with and without an N-terminal Met
Accession # AAC08706.1
Produced using non-animal reagents in an animal-free laboratory.
Manufactured and tested under cGMP guidelines.

N-terminal Sequence Analysis Met-Ala-Pro-Met-Thr-Gln-Thr-Thr-Ser-Leu
Ala-Pro-Met-Thr-Gln-Thr-Thr-Ser-Leu-Lys

Predicted Molecular Mass 15 kDa

SPECIFICATIONS

Activity Measured in a cell proliferation assay using TF-1 human erythroleukemic cells. Kitamura, T. *et al.* (1989) J. Cell Physiol. **140**:323.
The ED₅₀ for this effect is 0.02-0.1 ng/mL.
The specific activity of recombinant human IL-3 is $>1.7 \times 10^6$ IU/mg, which is calibrated against the human IL-3 WHO International Standard (NIBSC code: 91/510).

Endotoxin Level <0.10 EU per 1 µg of the protein by the LAL method.

Purity >97%, by SDS-PAGE under reducing conditions and visualized by silver stain.

Host Cell Protein < 0.5 ng per µg of protein when tested by ELISA.

Mycoplasma Negative for Mycoplasma.

Host Cell DNA < 0.0010 ng per µg of protein when tested by PCR.

Formulation Lyophilized from a 0.2 µm filtered solution in PBS. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution Reconstitute at 100 µg/mL in PBS.

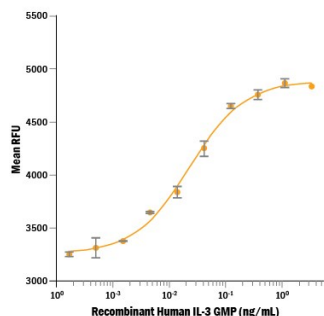
Shipping The product is shipped with polar packs. Upon receipt, store it immediately at the temperature recommended below.

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.
- 3 months, ≤ -20 °C under sterile conditions after reconstitution.

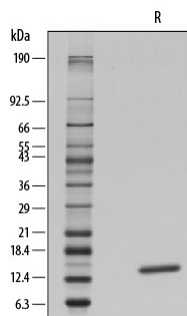
DATA

Bioactivity



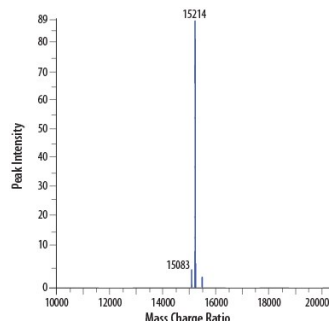
Recombinant Human IL-3 GMP Protein Bioactivity GMP-grade Recombinant Human IL-3 (Catalog # 203-GMP) stimulates proliferation of TF-1 human erythroleukemic cells. The ED₅₀ for this effect is 0.02-0.1 ng/mL.

SDS-PAGE



Recombinant Human IL-3 GMP Protein SDS-PAGE 1 µg/lane of GMP-grade Recombinant Human IL-3 (Catalog # 203-GMP) was resolved with SDS-PAGE under reducing (R) conditions and visualized by silver stain, showing a single band at 15 kDa.

Mass Spectrometry



Recombinant Human IL-3 GMP Protein Mass Spectrometry ESI analysis of GMP-grade Recombinant Human IL-3 (Catalog # 203-GMP). The labeled peaks at 15214 Da and 15083 Da correspond to the calculated molecular mass with the N-terminal Met, 15213 Da, and without the N-terminal Met, 15081 Da, respectively.

BACKGROUND

Interleukin 3 is a pleiotropic factor produced primarily by activated T cells that can stimulate the proliferation and differentiation of pluripotent hematopoietic stem cells as well as various lineage committed progenitors. In addition, IL-3 also affects the functional activity of mature mast cells, basophils, eosinophils and macrophages. Because of its multiple functions and targets, it was originally studied under different names, including mast cell growth factor, P-cell stimulating factor, burst promoting activity, multi-colony stimulating factor, thy-1 inducing factor and WEHI-3 growth factor. In addition to activated T cells, other cell types such as human thymic epithelial cells, activated murine mast cells, murine keratinocytes and neurons/astrocytes can also produce IL-3. At the amino acid sequence level, mature human and murine IL-3 share only 29% sequence identity. Consistent with this lack of homology, IL-3 activity is highly species-specific and human IL-3 does not show activity on murine cells.

IL-3 exerts its biological activities through binding to specific cell surface receptors. The high affinity receptor responsible for IL-3 signaling is composed of at least two subunits, an IL-3 specific α chain which binds IL-3 with low affinity and a common β chain that is shared by the IL-5 and GM-CSF high-affinity receptors. Although the β chain itself does not bind IL-3, it confers high-affinity IL-3 binding in the presence of the α chain. Receptors for IL-3 are present on bone marrow progenitors, macrophages, mast cells, eosinophils, megakaryocytes, basophils and various myeloid leukemic cells.

MANUFACTURING SPECIFICATIONS

GMP Proteins

R&D Systems, a Bio-Techne Brand's GMP proteins 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 testing and vendor qualification/monitoring
- Fully validated equipment, processes and test methods
- Equipment calibration schedules using a computerized calibration program
- Facility maintenance, safety programs and pest control
- Material review process for variances
- Monitoring of stability over product shelf-life

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:

- N-terminal amino acid analysis, SDS-PAGE analysis, and endotoxin level (as determined by LAL assay) performed on each bulk QC lot, not on individual bottlings of each QC lot
- Post-bottling lot-specific bioassay results (compliance with an established range) and results of microbial testing according to USP
- Host Cell Protein testing performed by ELISA
- Mycoplasma testing by ribosomal RNA hybridization assay

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.

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Production

- All molecular biology procedures use animal-free media and dedicated labware.
- Dedicated fermentors are utilized in committed animal-free areas.

Purification

- Protein purification columns are animal-free.
- Bulk proteins are filtered using animal-free filters.
- Purified proteins are stored in animal-free containers in a dedicated cold storage room.

Quality Assurance

- Low Endotoxin Level.
- No impairment of biological activity.
- High quality product obtained under stringent conditions.

[Please read our complete Animal-Free Statement](#)

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