

**DESCRIPTION**

**Source** *E. coli*-derived human IL-17E/IL-25 protein  
Tyr33-Gly177, with an N-terminal Met  
Accession # Q9H293  
Manufactured and tested under cGMP guidelines.

**N-terminal Sequence Analysis** Met-Tyr-Ser-His-Trp-Pro-Ser-(Cys)-(Cys)-Pro

**Structure / Form** Disulfide-linked homodimer

**Predicted Molecular Mass** 17 kDa (monomer)

**SPECIFICATIONS**

**Activity** Measured by its ability to induce CXCL1/GRO $\alpha$  secretion in HT-29 human colon adenocarcinoma cells.  
The ED<sub>50</sub> for this effect is 0.25-1.5 ng/mL.

**Endotoxin Level** <0.10 EU per 1  $\mu$ g of the protein by the LAL method.

**Purity** >97%, by SDS-PAGE with silver staining, under reducing conditions.

**Host Cell Protein** < 0.5 ng per  $\mu$ g of protein when tested by ELISA.

**Mycoplasma** Negative when tested in a ribosomal RNA hybridization assay.

**Formulation** Lyophilized from a 0.2  $\mu$ m filtered solution in Acetonitrile and TFA. See Certificate of Analysis for details.

**PREPARATION AND STORAGE**

**Reconstitution** Reconstitute at 100  $\mu$ g/mL in sterile 4 mM HCl.

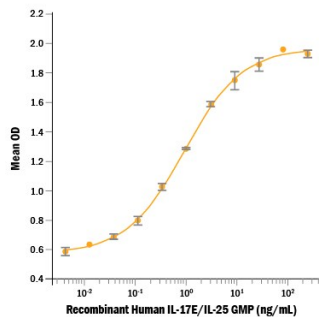
**Shipping** The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.

**Stability & Storage** Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- A minimum of 6 months when stored at  $\leq -20$  °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,  $\leq -20$  °C under sterile conditions after reconstitution.

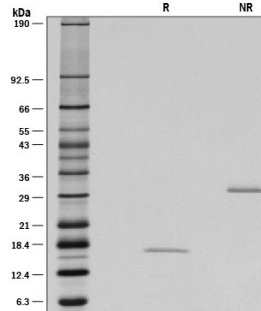
**DATA**

**Bioactivity**



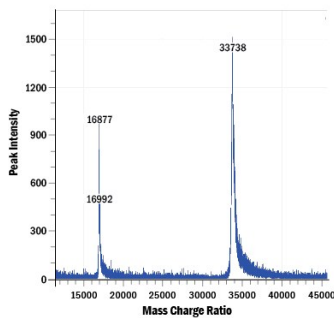
GMP-grade Recombinant Human IL-17E/IL-25 (Catalog # 1258-GMP) induces CXCL1/GRO $\alpha$  secretion in the HT-29 human colon adenocarcinoma cell line. The ED<sub>50</sub> for this effect is 0.25-1.5 ng/mL.

**SDS-PAGE**



1  $\mu$ g/lane of GMP-grade Recombinant Human IL-17E/IL-25 (Catalog # 1258-GMP) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by silver staining, showing bands at 17 kDa and 31 kDa, respectively.

**Mass Spectrometry**



MALDI-TOF analysis of GMP-grade Recombinant Human IL-17E (Catalog # 1258-GMP). The major peak at 33738 corresponds to the measured molecular weight of the intact dimeric protein. The calculated mass for a monomer is 16873 Da.

## BACKGROUND

The Interleukin-17 (IL-17) family of proteins are immunoregulatory cytokines that share a conserved cysteine-rich region. IL-17E, which is also known as IL-25, promotes Th2-biased immune responses. This is in contrast to other IL-17 family members which promote Th1- and Th17-biased inflammation. IL-25 is an important mediator of allergic reactions and protection against intestinal parasites (1, 2). Mature human IL-25 shares 80% amino acid sequence identity with mouse and rat IL-25 (3, 4). During helminth infections and allergic reactions, IL-25 is locally up-regulated in intestinal and airway epithelial cells, atopic dermatitis skin lesions, and local Th2 cells, eosinophils, and basophils (4-9). It binds to IL-17 RB but also requires IL-17 RA to exert its activity (3, 8, 10). IL-25 acts on a variety of cell types which respond with increased production of Th2 cytokines (e.g. IL-4, IL-5, IL-13) and reduced production of Th1 and Th17 cytokines (e.g. IFN- $\gamma$ , IL-12, IL-23, IL-17A, IL-17F) (4-6, 8, 9, 11-15). Airway IL-25 can be activated by MMP-7, a protease that is up-regulated in airway epithelium in response to allergen exposure (16). Cleaved IL-25 shows enhanced binding to IL-17 RB and stronger induction of Th2 cytokines (16). The Th2 cytokines, in turn, trigger expansion of Th2 memory cells and anti-inflammatory M2 macrophages, increased eosinophil mobilization and activation, and dendritic cell migration (4, 6, 9, 13). These actions promote protective anti-helminth immune responses (4, 5) as well as allergic inflammation and airway hyperreactivity (11). The IL-25 induced suppression of Th1 and Th17 cytokines limits Th17 cell expansion and disease pathology in autoimmunity and colitis (12, 15). IL-25 also promotes vascular endothelial cell proliferation and assembly into tubular structures (7). It supports the integrity of the blood-brain barrier and limits CD4<sup>+</sup> T cell infiltration into the brain (17).

## References:

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## MANUFACTURING SPECIFICATIONS

### GMP Proteins

R&D Systems, a Bio-Techne Brand's GMP proteins are produced according to relevant sections of the following documents: WHO TRS, No. 822, 1992 Annex 1, Good Manufacturing Practices for Biological Products; USP Chapter 1043, Ancillary Materials for Cell, Gene and Tissue-Engineered Products and USP Chapter 92, Growth Factors and Cytokines Used in Cell Therapy Manufacturing.

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- 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 bioburden testing (using broth culture, Sabourand's dextrose and blood agar plates with results reported at 3 days and at 7 days)
- 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. Testing may include, but is not limited to, USP <61> bioburden testing, positive identity testing, testing for adventitious agents and testing for residual host cell content.

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