

DESCRIPTION

Source *E. coli*-derived human IL-2 protein
Proprietary
Accession # Engineered based on P60568.1

SPECIFICATIONS

SDS-PAGE 7 kDa, under reducing conditions.
Activity Measured in a cell proliferation assay using NK-92 human natural killer lymphoma cells.
The ED₅₀ for this effect is 0.0150-0.150 ng/mL.
Endotoxin Level <0.10 EU per 1 µg of the protein by the LAL method.
Purity >95%, by SDS-PAGE with quantitative densitometry by Coomassie® Blue Staining.
Formulation Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

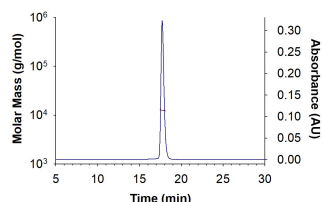
PREPARATION AND STORAGE

Reconstitution Reconstitute the 10 µg size at 100 µg/mL in PBS. Reconstitute all other sizes at 500 µg/mL in PBS.
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.

- 12 months from date of receipt, -20 to -70 °C as supplied.
- 12 months, 2 to 8 °C under sterile conditions after reconstitution.
- 12 months, -20 to -70 °C under sterile conditions after reconstitution.

DATA

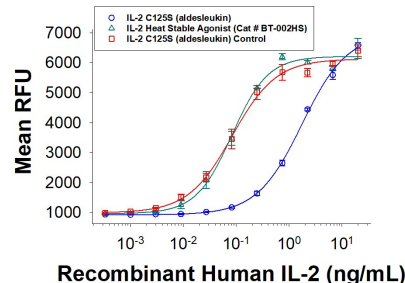
SEC-MALS



Recombinant Human IL-2 Heat Stable Agonist AI Modified Protein SEC-MALS.
Recombinant Human IL-2 Heat Stable Agonist AI Modified Protein (Catalog # BT-002HS) has a molecular weight (MW) of 12.6 kDa as analyzed by SEC-MALS, suggesting that this protein is a homodimer.

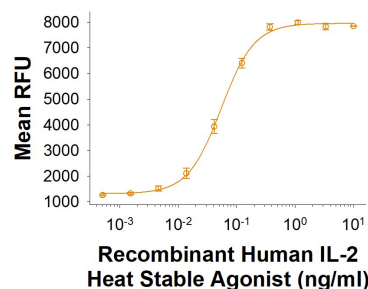
SEC-MALS Data	Result
Retention Time (Min)	17.5-18.1
MW - Predicted (Monomer)	7 kDa
MW - MALS	12.6
Polydispersity	1.000
System Suitability:	Pass
BSA Monomer 66.4 ± 3.32 kDa	

Bioactivity



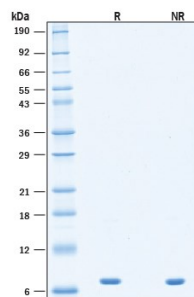
Proliferation bioassay in NK92 cells after 10 min at 95 °C After 10 min at 95°C (Control IL-2 C145S was kept at 4°C), only the heat stable IL-2 (Cat # BT-002HS) maintained bioactivity similar to the control IL-2, whereas the IL-2 Aldesleukin protein lost >14-fold activity.

Bioactivity



Recombinant Human IL-2 Heat Stable Agonist Protein Bioactivity. Recombinant Human IL 2 Heat Stable Agonist (Catalog # BT-002HS) stimulates proliferation of NK-92 human natural killer lymphoma cells. The ED₅₀ for this effect is 0.0150-0.150 ng/mL.

SDS-PAGE



Recombinant Human IL-2 Heat Stable Agonist Protein SDS-PAGE. 2 µg/lane of Recombinant Human IL-2 Heat Stable Agonist Protein (Catalog # BT-002HS) was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 7 kDa.

BACKGROUND

Predictive analytics are increasingly effective in solving challenges associated with developing protein reagents for cell culture applications, including thermal and pH instability. We have improved the stability of IL-2 by generating a synthetic structural core while maintaining efficiency in engagement and activation of IL-2 R β/γ_c receptors. The enhanced IL-2 displays improved heat stability enabling it to retain bioactivity while withstanding elevated temperatures and extended culture durations. Recombinant IL-2 is a bioactive protein for use in cell culture applications, often used for the expansion of T cells. IL-2 is expressed by CD4+ and CD8+ T cells, gamma delta T cells, B cells, dendritic cells, and eosinophils (1-3). rhIL-2 is also used for the expansion of NK cells, early differentiated T cells and effector memory Treg cells for adoptive cell transfer cancer immunotherapy (4,5). rhIL-2 Heat Stable agonist is verified for activity using an NK92 proliferation assay as well as T Cell culture applications comparing to the commonly used mutant aldesleukin IL-2 version.

References:

1. Ma, A. *et al.* (2006) *Annu. Rev. Immunol.* **24**:657.
2. Gaffen, S.L. and K.D. Liu (2004) *Cytokine* **28**:109.
3. Taniguchi, T. *et al.* (1983) *Nature* **302**:305.
4. Koehl, U. *et al.* (2015) *Oncoimmunology*. **5**:e1115178.
5. Chamucero-Millares, J.A. *et al.* (2021) *Cellular Immunol.* **360**:104257.