

Recombinant Human IL-1 alpha Protein

Cat. No. 110101

DESCRIPTION

Expression system	<i>E. coli</i>
Amino acid sequence	Ser113-Ala271, Accession #P01583
Molecular mass	Recombinant Human IL-1 alpha Protein, a monomer containing 159 amino acid residues, has a predicted molecular mass of approximately 18.1 kDa.

SPECIFICATIONS

Purity	> 98% by SDS-PAGE gel and HPLC analyses.
Endotoxin	Less than 0.1 EU/μg of rHuIL-1α as determined by LAL test.
Activity	The ED ₅₀ as determined by a cell proliferation assay using murine D10S cells is less than 1.0 pg/ml, corresponding to a specific activity of > 1.0 × 10 ⁹ U/mg.
Formulation	Lyophilized from a 0.22 μm filtered solution in PBS. See CoA for details.
Reconstitution	Always centrifuge tubes before opening. Do not mix by vortex or pipetting. Reconstitute in sterile distilled water to a concentration of 0.1-1.0 mg/mL. Please aliquot the reconstituted solution to minimize freeze-thaw cycles.

SHIPPING & STORAGE

Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature listed below.
Storage	Please use a manual defrost freezer and avoid repeated freeze-thaw cycles. ● Lyophilized protein should be stored at ≤ -20°C, stable for 12 months after receipt. ● Reconstituted protein solution can be stored at 2-8°C for 1 month. ● Aliquots of reconstituted samples are stable at ≤ -20°C for 3 months.

BACKGROUND

Human IL-1α is a vital pro-inflammatory cytokine encoded by the IL1A gene, belonging to the IL-1 superfamily and participating in immune reactions, inflammatory cascades and hematopoiesis. It can be recombinantly expressed in *Escherichia coli*. Predominantly secreted by monocytes, macrophages and dendritic cells, IL-1α is initially synthesized as a precursor. Upon cellular injury, it undergoes proteolytic cleavage and release to trigger apoptosis, exerting effects via two shared receptors (IL-1RI and IL-1RII) also used by IL-1β. As a pleiotropic mediator, IL-1α activates NF-κB and MAPK signaling cascades, upregulates IL-6 and cyclooxygenase-2 expression, and boosts nitric oxide production. Physiologically, it is enriched in barrier-forming tissues including epidermal keratinocytes and pulmonary epithelial cells, acting as an alarm hormone to initiate local inflammation. Additionally, IL-1α suppresses preadipocyte differentiation, lipid deposition and osteoblast maturation. Given its multifunctional biological roles, recombinant human IL-1α is extensively applied in basic research. It serves as a key reagent for investigating inflammatory mechanisms, immune regulation, and establishing relevant disease models.

Version202605.1

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Tel: +86 21 3115 5126

E-mail: order@protein-x.com

Website: <https://www.protein-x.com>

Addr: 4th Flr, Bldg 3, No. 651 Lianheng Rd, Pujiang Town, Minhang District, Shanghai, 201112, China