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# IL-1α

Catalog # PVGS1031

## Product Information

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| **Primary Accession** | P01583 |
| **Species** | Human |
| **Sequence** | Ser113-Ala271 |
| **Purity** | > 97% as analyzed by SDS-PAGE<br>> 97% as analyzed by HPLC |
| **Endotoxin Level** | |
| **Biological Activity** | Fully biologically active when compared to standard. 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 > $1.0 \times 10^9$ IU/mg. |
| **Expression System** | E. coli |
| **Theoretical Molecular Weight** | 18 kDa |
| **Formulation** | Lyophilized from a 0.2 □m filtered solution in PBS, pH 7.4. |
| **Reconstitution** | It is recommended that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Reconstitute the lyophilized powder in sterile distilled water or aqueous buffer containing 0.1% BSA to a concentration of 0.1-1.0 mg/ml. |
| **Storage & Stability** | Upon receiving, this product remains stable for up to 6 months at -70°C or -20°C. Upon reconstitution, the product should be stable for up to 1 week at 4°C or up to 3 months at -20°C. Avoid repeated freeze-thaw cycles. |

## Additional Information

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| **Gene ID** | 3552 |
| **Other Names** | Interleukin-1 alpha, IL-1 alpha, Hematopoietin-1, IL1A, IL1F1 |
| **Target Background** | IL-1 alpha is a non-secreted proinflammatory cytokine produced in a variety of cells including monocytes, tissue macrophages, keratinocytes and other epithelial cells. Both IL-1alpha and IL-1beta binds to the same receptor and has similar if not identical biological properties. These cytokines have a broad range of activities including, stimulation of thymocyte proliferation, by inducing IL-2 release, B-cell maturation and proliferation, mitogenic FGF-like activity and the ability to stimulate the release of prostaglandin and collagenase from synovial cells. However, whereas IL-1 beta is a secreted cytokine, IL-1 alpha is predominantly a cell-associated cytokine. |

## Protein Information

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| **Name** | IL1A |
| **Synonyms** | IL1F1 |
| **Function** | Cytokine constitutively present intracellularly in nearly all resting non-hematopoietic cells that plays an important role in inflammation and bridges the innate and adaptive immune systems (PubMed:26439902). After binding to its receptor IL1R1 together with its accessory protein IL1RAP, forms the high affinity interleukin-1 receptor complex (PubMed:17507369, PubMed:2950091). Signaling involves the recruitment of adapter molecules such as MYD88, IRAK1 or IRAK4 (PubMed:17507369). In turn, mediates the activation of NF-kappa-B and the three MAPK pathways p38, p42/p44 and JNK pathways (PubMed:14687581). Within the cell, acts as an alarmin and cell death results in its liberation in the extracellular space after disruption of the cell membrane to induce inflammation and alert the host to injury or damage (PubMed:15679580). In addition to its role as a danger signal, which occurs when the cytokine is passively released by cell necrosis, directly senses DNA damage and acts as a signal for genotoxic stress without loss of cell integrity (PubMed:26439902). |
| **Cellular Location** | Nucleus. Cytoplasm. Secreted Note=The lack of a specific hydrophobic segment in the precursor sequence suggests that IL-1 is released by damaged cells or is secreted by a mechanism differing from that used for other secretory proteins The secretion is dependent on protein unfolding and facilitated by the cargo receptor TMED10; it results in protein translocation from the cytoplasm into the ERGIC (endoplasmic reticulum-Golgi intermediate compartment) followed by vesicle entry and secretion (PubMed:32272059) Recruited to DNA damage sites and secreted after genotoxic stress |

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