

Recombinant Bovine Interleukin-6 (IL-6), Animal Component-Free

Cat. No. :	B009E
Alternative Names:	IL6; IL-6; IFNB2; Interleukin-6; Interleukin 6; B-cell stimulatory factor 2; BSF-2; CTL differentiation factor; CDF; Hybridoma growth factor; Interferon beta-2; IFN-beta-2
Species:	Bovine
Accession No.:	P26892
Expression System:	E. coli
Protein Sequence:	Gly30-Lys308
Theoretical MW:	20.67 kDa
Theoretical pI:	6.63
Tag:	Tag-Free.
Formulation buffer:	PBS, 5% Mannitol and 0.01% Tween 80, pH7.4.
Appearance:	Lyophilized Powder.
Purity:	≥95% as determined by SDS-PAGE.
Bioactivity:	ED ₅₀ ≤ 0.1 ng/mL as determined in M-NFS-60 cell proliferation assay.
Endotoxin Level:	≤0.01 EU/μg, as determined by the LAL assay.
Application:	Cell Culture; Activity Assays.

Preparation & Storage

Reconstitution: Reconstitute with sterile double-distilled water (ddH₂O).

- ⚠ Centrifuge the vial briefly before opening to ensure full recovery of the solution. Avoid vortexing and minimize vigorous pipetting to maintain protein stability.
- ❄ Immediately aliquot the reconstituted protein solution and store under recommended conditions. Avoid repeated freeze-thaw cycles.

Shipping: Shipped on dry ice. Short-term transit on cold packs (2-8°C) is acceptable.

Storage: Use a manual defrost freezer and avoid repeated freeze-thaw cycles.

- 12 months from date of receipt, -20 to -80°C as supplied.
- 2-7 days at 2 to 8°C under sterile conditions after reconstitution.
- 3-6 months at -20 to -80°C under sterile conditions after reconstitution.

Protein Description

Background: Interleukin-6 (IL-6) is a pleiotropic cytokine that plays a crucial role in immune regulation, inflammatory responses, hematopoiesis, and acute phase reactions in cattle. The bovine IL-6 protein, encoded by the IL6 gene, consists of 212 amino acids with a 28 amino acid signal peptide. It shares structural and functional homology with IL-6 proteins from other mammalian species, featuring four conserved alpha-helical domains characteristic of the IL-6 family of cytokines.

Bovine IL-6 is primarily produced by activated T cells, macrophages, fibroblasts, endothelial cells, and mammary epithelial cells in response to inflammatory stimuli, pathogens, or tissue damage. It exerts its biological effects through binding to a receptor complex composed of the specific IL-6 receptor alpha chain (IL-6R α) and the signal-transducing glycoprotein 130 (gp130), activating JAK/STAT, MAPK, and PI3K signaling pathways.

In cattle, IL-6 serves as a key mediator in host defense mechanisms against bacterial and viral infections. It is particularly significant in the pathogenesis of bovine mastitis, where elevated IL-6 levels correlate with disease severity. Additionally, bovine IL-6 participates in metabolic regulation, reproductive processes including ovarian follicle development and embryo implantation, and the regulation of milk protein synthesis in mammary tissue.

The expression of bovine IL-6 is tightly regulated at transcriptional and post-transcriptional levels, with NF-κB and C/EBP transcription factors playing pivotal roles in its induction during inflammatory responses. Due to its central role in inflammation and immunity, bovine IL-6 represents a potential biomarker for inflammatory diseases and a target for therapeutic interventions in veterinary medicine.

References:

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