

Recombinant Rat LIF Protein

For Research Use Only

1. Basic Product Information

Catalog No.: REP52296

Size: 10ug, 100ug

Protein Name: Leukemia inhibitory factor (LIF) (Cholinergic neuronal differentiation factor)

Synonym: Lif

UniProt ID: P17777

UniProt Link: www.uniprot.org/uniprotkb/P17777/entry

Species Source: Rat

Expression System: HEK293T eukaryotic cell expression system Sequence

Length: 202 AA

Molecular Weight: 22 KD

Protein Tag: C-terminal His6

2. Amino Acid Sequence

MKVLAAGIVPLLLILHWKHGAGSPLPITPVNATCAIRHPCHGNLMNQIKSQLAQLNGSANALFISYYTA
QGEPFPNNVDKLCAPNMTDFPPFHANGTEKTKLVELYRMVTYLGASLTNITWDQKNLNPTAVSLQIK
LNATTDVMRGLLSSVLCRLCNKYHVGHVDPVPCVPDSSKEAFQRKKLGCQLLGTYKQVISVLAQAF

3. Buffer Composition

Liquid format: PBS-based buffer containing 50% glycerol. Glycerol concentration can be customized upon customer request; please state special requirements when placing your order.

Lyophilized format: Buffer before lyophilization is PBS supplemented with 6% trehalose.

4. Storage Conditions

Upon receipt, store the product at -20 °C or -80 °C. Aliquot the product for on-demand use to preserve protein activity and prevent denaturation and inactivation caused by repeated freeze-thaw cycles.

5. Product Description

This product is recombinant Leukemia inhibitory factor (LIF) (Cholinergic neuronal differentiation factor) produced using the HEK293T eukaryotic cell expression system. It is suitable for in-vitro functional assays, protein-protein interaction studies, antibody preparation and other biomedical research applications.

Protein Function: Functions as a cytokine that binds to the LIF receptor complex. The LIF receptor complex indeed consists of two signaling receptor subunits IL6ST/gp130 and LIFR that transduce the signal into the cell (By similarity). Functionally, regulates cell self-renewal, differentiation and survival of embryonic stem cells (ESCs) (PubMed:2512641, PubMed:3143917). Also is crucial for embryonic implantation (By similarity). Mechanistically, ligand binding to LIFR, induces heterodimerization with IL6ST/gp130 activating JAK tyrosine kinases (JAK1 or JAK2 and to a lesser extent TYK2) bound to their intracellular domains. These kinases subsequently phosphorylate IL6ST/gp130 and LIFR. The tyrosine phosphorylated signaling receptors serve in turn as docking sites for recruitment and activation of signal transducers and activators of transcription (STAT3 and to lesser extent STAT1). In parallel to the activation of the STAT3-pathway, the binding of LIF to the LIF receptor complex leads to the activation of the mitogen-activated protein kinase (MAPK) and the phosphatidylinositol 3-kinase (PI(3)K) pathways. Tyrosine phosphorylation of the p85 subunit of PI(3)K by JAK1 leads to activation of the serine/ threonine kinase AKT (protein kinase B) (By similarity). PI(3)K-dependent signaling is required for efficient self-renewal of murine ES cells, and regulation of ERK activity is functionally important in this response (By similarity). Moreover, induces tyrosine phosphorylation of PTPN11, that associates with IL6ST/gp130-LIFR, which in turn recruits the p85 regulatory subunit of PI(3)K protein kinase, promoting PI3K-AKT activation, and GRB2-RAS-MAPK signaling (By similarity).

Subcellular Localization: Secreted .

6. Notes

- Avoid repeated freeze-thaw cycles to maintain protein stability and biological activity.
- Please specify special buffer- composition requirements at the time of order placement.
- For research use only. Not intended for clinical diagnosis, therapeutic use or commercial manufacturing.