LD Biopharma, Inc.
9924 Mesa Rim Road Suite B
San Diego, CA 92121
Tel: 858-876-8266
http://www.ldbiopharma.com

- PRODUCT DATA SHEET -

Name of Product: Recombinant Human Klf4-11R Protein
Catalog Number: hTF-0008
Manufacturer: LD Biopharma, Inc.

Introduction

The Krüppel-like family of zinc finger transcription factors regulates numerous biological processes, including proliferation, differentiation, apoptosis, development, and inflammation. Human KLF4 gene encodes one of Krüppel-like family of zinc finger transcription factors. Recent data indicated that KLF4 activities not only plays an important role for iPS generation when combined with OSM factors, but also involved in carcinogenesis

Full-length human KLF4 cDNA (479 aa) was constructed with codon optimization by gene synthesis and expressed with flexible linker domain & eleven arginine (11R Tag) as membrane penetration domain at the C terminus to enable penetration across the plasma membrane of mammalian cells. The protein was expressed in E. coli as inclusion bodies, solubilized, refolded, using our unique "temperature shift inclusion body refolding" technology and chromatographically purified. The protein identity was confirmed by both MS mapping and western blot analysis. The in vitro function was tested using specific DNA binding assays. This product was reported to successfully generate induced pluripotent stem (iPS) cells from OG2 MEFs[1] and human fibroblast cells[2].

Gene Symbol:	Klf4 (ESF; GKLF)
Accession Number:	NP_004226.3
Species:	Human
Size:	50 µg / Vial
Composition:	0.5 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, arginine, DTT and Glycerol.
Storage:	In Liquid. Keep at -20°C for long term storage. Product is stable at 4 °C for at least 7 days

Key References

Hongyan Zhou, et al. *Generation of induced pluripotent stem cells using recombinant protein*. Cell Stem Cell. Vol 4. Issue 5: 381-384 (2009)

LD Biopharma, Inc.
9924 Mesa Rim Road Suite B
San Diego, CA 92121
Tel: 858-876-8266
http://www.ldbiopharma.com

Jieun Lee, et al. *Activation of innate immunity is required for efficient nuclear reprogramming.* Cell. 151. 547 – 558. Oct 26 (2012)

Applications

1. May be used for in vitro human Klf4 mediated iPS generation mechanism, or its gene specific transcription regulation study with intracellular delivery of this protein.
2. May be used as specific substrate protein for kinase and ubiquitin (Sumo pathway) related enzyme functional screening assays.
3. May be used for Klf4 protein-protein interaction mapping.
4. May be used for specific antibody production.

Quality Control

1. Purity: > 70% by SDS-PAGE.
2. Cellular Toxicity: This recombinant protein was tested on mouse embryonic stem cells up to 50 µg/ml in culture medium. Suggested reprogramming protein concentration is between 0.5 to 8 ug / ml for both human and mouse fibroblast cells applications.
3. Biologic Activity: reprogramming mouse fibroblast cell to iPS cells using 3 retroviral vectors, which carry Oct4, Sox2 & cMyc with this protein as replacement assay. 8ug/ml of human Klf4-11R were added in reprogramming medium every 48 hours for 20 days. Intracellular protein penetration rate was tested using DyLight labeled Klf4-11R protein at 1ug/ ml for 30 min incubation for human fibroblast cells (BJ) at 37C. More than 90% cell will be positive one hour after sample incubation.

Recombinant Protein Sequence

MRQPPGESDMAVSDALLPSFSTFASGPAGREKTLRQAGAPNNRWREELSHMKRLPPVLPGRPYD
LAAATVATDLESGGAGAACGGSNLAPLPRRETEEFNDLLDLDFILSNSLTHPPESVAATVSSSA
SASSSSSPSSSGPASAPSTCSFTYPIRAGNDPGVAPGGTGGGLLYGRESAPPPTAPFNLADIND
VSPSGGFVAELLRPELDPVYIPPQQPQPPGGGLMGKFVLKASLSAPGSEYGSPSVISVSKGSPD
GSHPVVVAPYNGGPPRTCPKIKQEAVSSCTHLGAGPPLSNGHRPAAHDFPLGRQLPSRTTPTLG
LEEVLSSRDCHPALPLPPGFHPHPGPNYPSFLPDQMQPQVPPLHYQELMPPGSCMPEEPKPKRG
RRSWPRKRTATHTCDYAGCGKTYTKSSHLKAHLRTHTGEKPYHCDWDGCGWKFARSDELTRHYR
KHTGHRPFQCQKCDRAFSRSDHLALHMKRHF**ESGGGGSPGRRRRRRRRRRR**