LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human Oct4-11R Protein
Catalog Number: hTF-0006
Manufacturer: LD Biopharma, Inc.

Introduction

Human POU domain, class5, transcription factor 1 (Oct4) gene encodes a transcription factor containing a POU homeodomain. This transcription factor plays a role in embryonic development, especially during early embryogenesis, and it is necessary for embryonic stem cell pluripotency.

Full-length human Oct4 cDNA (360 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:	Oct4 (POU5F1; OCT3; OTF3)
Accession Number:	NP_002692
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

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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)

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 Oct4 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 Oct4 protein-protein interaction mapping.
4. May be used for specific antibody production.

Quality Control

1. Purity: > 93% 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: Measured by EMSA DNA specific binding assay using IRdye700 double strain labeled 5'-GGCCCATGCAAATCCAGGAA 3' oligo as probe. Intracellular protein penetration rate was tested using DyLight labeled Oct4-11R protein at 1ug/ ml for 30 min incubation for human fibroblast cells (BJ) at 37C. More than 95% cell will be positive one hour after sample incubation.

Recombinant Protein Sequence

MAGHLASDFAFSPPPGGGGDGPGGPEPGWVDPRTWLSFQGPPGGPGIGPGVGPGSEVWGIPPCPP
PYEFCGGMAYCGPQVGVGLVPQGGLETSQPEGEAGVGVESNSDGASPEPCTVTPGAVKLEKEKLE
QNPEESQDIKALQKELEQFAKLLKQKRITLGYTQADVGLTLGVLFGKVFSQTTICRFEALQLSFK
NMCKLRPLLQKWVEEADNNENLQEICKAETLVQARKRKRTSIENRVRGNLENLFLQCPKPTLQQI
SHIAQQLGLEKDVVRVWFCNRRQKGKRSSSDYAQREDFEAAGSPFSGGPVSFPLAPGPHFGTPGY
GSPHFTALYSSVPFPEGEAFPPVSVTTLGSPMHSN**ESGGGGSPGRRRRRRRRRRR**