



LD Biopharma, Inc.
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<http://www.ldbiopharma.com>

- PRODUCT DATA SHEET -

Name of Product: Recombinant Human Sox2-11R Protein
Catalog Number: hTF-0007
Manufacturer: LD Biopharma, Inc.

Introduction

Human Sox2 gene encodes a member of the SRY-related HMG-box (SOX) family of transcription factors involved in the regulation of embryonic development and in the determination of cell fate. The product of this gene is required for stem-cell maintenance in the central nervous system, and also regulates gene expression in the stomach. Mutations in this gene have been associated with optic nerve hypoplasia and with syndromic microphthalmia, a severe form of structural eye malformation.

Full-length human Sox2 cDNA (317 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 MEFs¹ and human fibroblast cells².

Gene Symbol: Sox2 (pfam12336)
Accession Number: NP_003097.1
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



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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 Sox2 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 Sox2 protein-protein interaction mapping.
4. May be used for specific antibody production.

Quality Control

1. Purity: > 95% 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 Sox2-11R 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

MYNMMETELKPPGPQQTSGGGGGNSTAAAAGGNQKNSPDRVKRPMNAFMVWSRGQRRKMAQENP
KMHNSEISKRLGAEWKLLSETEKRPFIDEAKRLRALHMKEHPDYKYRPRRKTTLMKKDKYTLP
GGLLAPGGNSMASGVGVGAGLGAGVNQRMDSYAHMNGWSNGSYSMMQDQLGYPQHPGLNAHGAA
QMQPMHRYDVSALQYNSMTSSQTYMNGSPTYSMSYSQQGTPGMALGSMG SVVKSEASSSPVVT
SSSHSRAPCQAGDLRDMISMYLPGA EVPEPAAPSRLHMSQHYQSGPVPGTAINGTLPLSHMESG
GGSPGRRRRRRRRRR