



LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human ISL1-11R Protein
Catalog Number: HTF-0142
Manufacturer: LD Biopharma, Inc.

Introduction

Human **Insulin gene enhancer protein ISL-1 (ISL1)** gene encodes a member of the LIM/HD domain transcription factor. It recognizes and binds to the consensus octamer binding site 5'-ATAATTAA-3' in promoter of target genes. Plays a fundamental role in the gene regulatory network essential for retinal ganglion cell (RGC) differentiation. ISL1 cooperates with the transcription factor POU4F2 to achieve maximal levels of expression of RGC target genes and RGC fate specification in the developing retina. It is involved in the specification of motor neurons in cooperation with LHX3 and LDB1. It binds to insulin gene enhancer sequences. It is also essential for heart development. Marker of one progenitor cell population that give rise to the outflow tract, right ventricle, a subset of left ventricular cells, and a large number of atrial cells as well, its function is required for these progenitors to contribute to the heart. ISL1 controls the expression of FGF and BMP growth factors in this cell population and is required for proliferation and survival of cells within pharyngeal foregut endoderm and adjacent splanchnic mesoderm as well as for migration of cardiac progenitors into the heart.

Full-length human ISL1 cDNA (348aa, derived from BC031213) was constructed with codon optimization using gene synthesis technology and expressed with a small T7-His-TEV cleavage site Tag (29aa) fusion at its N-terminal and 11 arginine (11R) tag at its C-terminal. It was expressed in E. coli as inclusion bodies. The final product was refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

Gene Symbol:	ISL1 (Islet-1)
Accession Number:	NP_002193.2
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, Sucrose ,DTT and others.
Storage:	In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.

Key References



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Rui Gao, et al., ***Pioneering function of Isl1 in the epigenetic control of cardiomyocyte cell fate.*** Cell Research.): 1-6. <https://doi.org/10.1038/s41422-019-0168-1>. (2019)

Zhang Y, et al., ***ISL1 promotes cancer progression and inhibits cisplatin sensitivity in triple-negative breast cancer cells.*** Int.J.Mol. Med.42(5), 2343-2352. (2018)

Quaranta R, et al., ***Revised roles of ISL1 in a hES cell-based model of human heart chamber specification.*** Elife 7, e31706 (2018)

Zhang R, et al., ***ISL1 is a major susceptibility gene for classic bladder exstrophy and a regulator of urinary tract development.*** Sci Rep 7, 42170 (2017)

Yan C, et al., ***Protein Inhibitor of Activated STAT Y (PIASy) Regulates Insulin Secretion by Interacting with LIM Homeodomain Transcription Factor Isl1.*** Sci Rep 6, 39308 (2016)

Applications

1. May be used for in vitro Isl1 mediated gene transcription regulation study in cardiomyocyte lineage or other cell's differentiation by intracellular delivery of this ISL1-11R protein directly in vitro cell culture.
2. May be used for mapping ISL1 protein-protein interaction.
3. May be used as specific substrate protein for kinase, and ubiquitin (Sumo pathway) related enzyme functional screening assays.
4. Potential biomarker protein / therapeutic target protein for cancer cell chemotherapy sensitivity assay, et al
5. As native human ISL1 immunogen for specific antibody production.

Quality Control

Purity: > 92 % by SDS-PAGE.

Recombinant Human ISL1-11R Protein Sequence (44.6 kD)

MASMTGGQQMGRGHHHHHENLYFQGGEFGDMGDPPKKRLISLCVGCNQIHDQYILRVSPDL
EWHAACLKCAECNQYLDSECTCFVRDGTKYCKRDYIRLYGIKCAKCSIGFSKNDFVMRARSKVY



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HIECFRCVACSRQLIPGDEFALREDGLFCRADHDVVERASLGAGDPLSPLHPARPLQMAAEPIS
ARQPALRPHVHKQPEKTTRVRTVLNEKQLHTLRTCYAANPRPDALMKEQLVEMTGLSPRVIRVW
FQNKRCDDKRSIMMKQLQQQPNDKTNIQGMTGTPMVAASPERHDGGLQANPVEVQSYQPPWK
VLSDFALQSDIDQPAFQQLVNFSEGGPGSNSTGSEVASMSSQLPDTPNMVASPIEAESGGGS
PGRRRRRRRRRRR