LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human FoxO4-11R Protein
Catalog Number: hTF-2193
Manufacturer: LD Biopharma, Inc.

Introduction

Human FoxO4 gene encodes a transcription factor which involved in the regulation of the insulin signaling pathway. It binds to insulin-response elements (IREs) and can activate transcription of IGFBP1. FoxO4 down-regulates expression of HIF1A and suppresses hypoxia-induced transcriptional activation of HIF1A-modulated genes. It is also involved in negative regulation of the cell cycle. It is involved in increased proteasome activity in embryonic stem cells (ESCs) by activating expression of PSMD11 in ESCs, leading to enhanced assembly of the 26S proteasome, followed by higher proteasome activity. Recent data indicated that show FoxO4 protects senescent cell viability by keeping p53 sequestered in nuclear bodies, preventing it from inducing apoptosis. Disrupting this interaction with a unique peptide (FOXO4-DRI) restores p53's apoptotic role and ameliorates the consequences of senescence-associated loss of tissue homeostasis.

Full-length human FoxO4 cDNA (504aa) was constructed with codon optimization using gene synthesis technology and expressed with a small T7-His-TEV cleavage site Tag (31aa) 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:	FoxO4 (AFX; AFX1; MLLT7)
Accession Number:	NP_005929.2
Species:	Human
Size:	10 µg / Vial
Composition:	0.1 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose and DTT.
Storage:	In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.

Key References

Marjolein P.Baar, et al., *Targeted Apoptosis of Senescent Cells Restores Tisses Homestasis in Response To Chemotoxicity and Aging.* Cell. 169, 132-147. (2017)

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Wang GJ, et al., *The role of microRNA-1274a in the tumorigenesis of gastric cancer: accelerating cancer cell proliferation and migration via directly targeting FOXO4.* Biochem. Biophys. Res. Commun. 459 (4), 629-635 (2015)

Charitou P, et al., *FOXOs support the metabolic requirements of normal and tumor cells by promoting IDH1 expression.* EMBO Rep. 16 (4), 456-466 (2015)

Li J, et al., *microRNA-150 promotes cervical cancer cell growth and survival by targeting FOXO4*. BMC Mol. Biol. 16, 24 (2015)

Applications

1. May be used for in vitro FoxO4 mediated gene transcription regulation study in cell cycle regulation (the senescent state) & cell apoptosis signaling for various cells by intracellular delivery of this protein.

2. May be used for mapping 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 prognosis and cancer treatment & anti-aging drug development.

5. As immunogen for specific antibody production.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHHENLYFQGGEFELDPGNENSATEAAAIIDLDPDFEPQSRPRSCTWP
LPRPEIANQPSEPPEVEPDLGEKVHTEGRSEPILLPSRLPEPAGGPQPGILGAVTGPRKGGSRR
NAWGNQSYAELISQAIESAPEKRLTLAQIYEWMVRTVPYFKDKGDSNSSAGWKNSIRHNLSLHS
KFIKVHNEATGKSSWWMLNPEGGKSGKAPRRRAASMDSSSKLLRGRSKAPKKKPSVLPAPPEGA
TPTSPVGHFAKWSGSPCSRNREEADMWTTFRPRSSSNASSVSTRLSPLRPESEVLAEEIPASVS
SYAGGVPPTLNEGLELLDGLNLTSSHSLLSRSGLSGFSLQHPGVTGPLHTYSSSLFSPAEGPLS
AGEGCFSSSQALEALLTSDTPPPPADVLMTQVDPILSQAPTLLLLGGLPSSSKLATGVGLCPKP
LEAPGPSSLVPTLSMIAPPPVMASAPIPKALGTPVLTPPTEAASQDRMPQDLDLDMYMENLECD
MDNIISDLMDEGEGLDFNFEPDPESGGGGSPGRRRRRRRRRRR