



LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human Runx3-11R Protein
Catalog Number: hTF-2096
Manufacturer: LD Biopharma, Inc.

Introduction

Human runt-related transcription factor 3 (Runx3) gene encodes a member of the runt domain-containing family of transcription factors. A heterodimer of this protein and a beta subunit forms a complex that binds to the core DNA sequence 5'-PYGPYGGT-3' found in a number of enhancers and promoters, and can either activate or suppress transcription. It also interacts with other transcription factors. It functions as a tumor suppressor, and the gene is frequently deleted or transcriptionally silenced in cancer. Recent data indicated that Runx3 can mediate TCF7 repression, which coordinately enforce acquisition of CT8⁺ T_{EFF} (CT8 cytotoxic cell) functions and protect the cytotoxic lineage integrity by preventing T_{FH}-lineage deviation.

Full-length human Runx3 cDNA (428aa, Isoform-I, BC013362) 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. This Runx3-11R fusion protein. 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: Runx3 (AML2; CBFA3; PEBP2aC)
Accession Number: NP_001026850
Species: Human
Size: 20 µg / Vial
Composition: 0.2 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

J.Justin Milner, et al., *Runx3 programs CD8⁺ T cell residency in non-lymphoid tissues and tumours*. Nature doi: 10.1038/nature24993. (2017)



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Selvarajan V, et al., *RUNX3 is oncogenic in natural killer/T-cell lymphoma and is transcriptionally regulated by MYC*. *Leukemia* 31 (10), 2219-2227 (2017)

Morita K, et al., *Genetic regulation of the RUNX transcription factor family has antitumor effects*. *J. Clin. Invest.* 127 (7), 2815-2828 (2017)

Saikia S, et al., *Alteration in the expression of MGMT and RUNX3 due to non-CpG promoter methylation and their correlation with different risk factors in esophageal cancer patients*. *Tumour Biol.* 39 (5), 1010428317701630 (2017)

Applications

1. May be used for in vitro Runx3 mediated gene transcription regulation study of CD8⁺ T cell non-lymphoid or tumor tissue migration controlling 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/therapeutic protein for cancer immune-therapy, such as regulating CD8 T cell tumor infiltration.
5. As immunogen for specific antibody production.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHENLYFQGGEFASNSIFDSFPTYSPTEFIRDPSTSRRTTPPSPAFFC
GGGGGKMGENSGALSAQAAVGPGGRARPEVRSMDVLDHAGELVRTDSPNFLCSVLPSHWRCN
KTLPVAFKVVVALGDVPDGTVVVTVMAGNDENYSAELRNASAVMKNQVARFNDLRFVGRSGRGKSF
TLTITVFTNPTQVATYHRAIKVTVDGPREPRRHRQKLEDQTKPFDPDFGLERLRMRVTPSTPS
PRGSLSTTSHFSSQPQTPIQGTSELNPFSDPRQFDRSFPTLPTLTESRFPDPRMHYPGAMSAAF
PYSATPSGTSISSLSVAGMPATSRFHHTYLPPYPGAPQNSGPFQANPSYHLYGTSSGSYQ
FSMVAGSSSGGDRSPTRMLASCTSSAASVAAGNLMNP SLGGQSDGVEADGSHSNSPTALSTPGR
MDEAVWRPYESGGGGSPGRRRRRRRRRRR