



LD Biopharma, Inc.
7384 Trade Street, Suite B
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Tel: 858-876-8266
<http://www.ldbiopharma.com>

- PRODUCT DATA SHEET -

Name of Product: Recombinant Human CHOP Protein
Catalog Number: HRP-1323
Manufacturer: LD Biopharma, Inc.

Introduction

Human DNA-damage-inducible transcript 3 (CHOP, or DDIT3) gene encodes a member of the CCAAT/enhancer-binding protein (C/EBP) family of transcription factors. The protein functions as a dominant-negative inhibitor by forming heterodimers with other C/EBP members, such as C/EBP and LAP (liver activator protein), and preventing their DNA binding activity. The protein is implicated in adipogenesis and erythropoiesis, is activated by endoplasmic reticulum stress, and promotes apoptosis. Fusion of this gene and FUS on chromosome 16 or EWSR1 on chromosome 22 induced by translocation generates chimeric proteins in myxoid liposarcomas or Ewing sarcoma. Multiple alternatively spliced transcript variants encoding two isoforms with different length have been identified. Recent data indicated that CHOP also inhibits the canonical Wnt signaling pathway by binding to TCF7L2/TCF4, impairing its DNA-binding properties and repressing its transcriptional activity. Plays a regulatory role in the inflammatory response through the induction of caspase-11 (CASP4/CASP11) which induces the activation of caspase-1 (CASP1) and both these caspases increase the activation of pro-IL1B to mature IL1B which is involved in the inflammatory response.

Full-length of human CHOP cDNA (2 – 169 aa, Isoform-II) was constructed with codon optimization and expressed with a small T7-His-TEV cleavage site Tag (31aa) fusion at its N-terminal 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: CHOP (DDIT3; GADD153; CEBPZ; CHOP10)
Accession Number: NP_004074.2
Species: Human
Size: 50 µg / Vial
Composition: 1.0 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose, DTT and others.



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Storage: In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.

Key References

Yu Cao, et al., *ER stress-induced mediator C/EBP homologous protein thwarts effector T cell activity in tumors through T-bet repression*. Nature communication (10): 1280 (2019).

Diane DeZwaan-McCabe, et al., *The Stress-Regulated Transcription Factor CHOP Promotes Hepatic Inflammatory Gene Expression, Fibrosis, and Oncogenesis*. PLOS Genetics 9 (12):e1003937. (2013).

Gupta SC, et al., *Azadirone, a limonoid tetranortriterpene, induces death receptors and sensitizes human cancer cells to tumor necrosis factor-related apoptosis-inducing ligand (TRAIL) through a p53 protein-independent mechanism: evidence for the role of the ROS-ERK-CHOP-death receptor pathway*. J. Biol. Chem. 288 (45), 32343-32356 (2013)

Moriya S, et al., *Macrolide antibiotics block autophagy flux and sensitize to bortezomib via endoplasmic reticulum stress-mediated CHOP induction in myeloma cells*. Int. J. Oncol. 42 (5), 1541-1550 (2013)

Applications

- May be used for study CHOP mediated gene transcription regulation in human cell differentiation pathway in vitro using “ProFectin” based intracellular delivery of recombinant CHOP protein.
- May be used as specific substrate protein for kinase and ubiquitin (Sumo pathway) related enzyme functional screening assays.
- May be used for CHOP protein-protein interaction mapping.
- High purified native CHOP antigen, which may be used for specific antibody production.
- Potential disease diagnostic biomarker protein such as Sjogren Syndrome.



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Quality Control

Purity: > 92% by SDS-PAGE.

Recombinant Human CHOP Protein Sequence. (22.2 kD)

MASMTGGQQMGRGHHHHHENLYFQGGEAAESLPFSFGTLSSWELEAWYEDLQEVLSSENGGT
YVSPPGNEEEESKIFTTLDPASLAWLTEEEPEPAEVTSTSQSPHSPDSSQSSLAQEEEEEDQGR
TRKRKQSGHSPARAGKQRMKEKEQENERKVAQLAEENERLKQEIERLTREVEATTRALIDRMVN
LHQA