



LD Biopharma, Inc.
7384 Trade Street, Suite B
San Diego, CA 92121
Tel: 858-876-8266
<http://www.ldbiopharma.com>

- PRODUCT DATA SHEET -

Name of Product: Recombinant Human CEBPA Protein
Catalog Number: hTF-2460
Manufacturer: LD Biopharma, Inc.

Introduction

Human CCAAT/Enhancer-binding protein alpha (CEBPA) gene encodes a transcription factor that coordinates proliferation arrest and the differentiation of myeloid progenitors, adipocytes, hepatocytes, and cells of the lung and the placenta. It binds directly to the consensus DNA sequence 5'-T[TG]NNGNAA[TG]-3' acting as an activator on distinct target genes. During early embryogenesis, it plays essential and redundant functions with CEBPB. It is essential for the transition from common myeloid progenitors (CMP) to granulocyte/monocyte progenitors (GMP). It is critical for the proper development of the liver and the lung. CEBPA is necessary for terminal adipocyte differentiation, is required for postnatal maintenance of systemic energy homeostasis and lipid storage. To regulate these different processes at the proper moment and tissue, it interplays with other transcription factors and modulators. Down-regulates the expression of genes that maintain cells in an undifferentiated and proliferative state through E2F1 repression, which is critical for its ability to induce adipocyte and granulocyte terminal differentiation. Reciprocally E2F1 blocks adipocyte differentiation by binding to specific promoters and repressing CEBPA binding to its target gene promoters. Proliferation arrest also depends on a functional binding to SWI/SNF complex. In liver, it regulates gluconeogenesis and lipogenesis through different mechanisms. To regulate gluconeogenesis, CEBPA functionally cooperates with FOXO1 binding to IRE-controlled promoters and regulating the expression of target genes such as PCK1 or G6PC. To modulate lipogenesis, it interacts and transcriptionally synergizes with SREBF1 in promoter activation of specific lipogenic target genes such as ACAS2. In adipose tissue, it seems to act as FOXO1 co-activator accessing to ADIPOQ promoter through FOXO1 binding sites. Anti-CEBPA auto-antibodies have been found in sera from patients with autoimmune diseases and cancer patients.

Full-length human CEBPA (357aa, derived from BC160133) gene was constructed with codon optimization gene synthesis and expressed with a human alpha Fetal Protein N-terminal (AFPn) -His-TEV cleavage site Tag (217aa) fusion at its N-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: CEBPA (C/EBP-alpha; CEBP)
Accession Number: NP_004355.2



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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 7 days.

Key References

Zeller T, et al., *Transcriptome-Wide Analysis Identifies Novel Associations With Blood Pressure*. Hypertension 70 (4), 743-750 (2017)

Muller C, et al. *Nucleolar retention of a translational C/EBPalpha isoform stimulates rDNA transcription and cell size*. EMBO J. 29 (5), 897-909 (2010)

Lincoln AJ, et al., *Inhibition of CCAAT/enhancer-binding protein alpha and beta translation by upstream open reading frames*. J. Biol. Chem. 273 (16), 9552-9560 (1998)

Applications

1. May be used for in vitro CEBPA mediated gene transcription regulation study for various cells by intracellular delivery of this protein with ProFectin reagents.
2. May be used for mapping CEBPA protein-protein interaction.
3. May be used as specific substrate protein for kinase, and ubiquitin (Sumo pathway) related enzyme functional screening assays.
4. May serve as auto-antibodies detection reagent, which will react with sera of some auto-immuno-diseases's or cancer patients.
5. As Immunogen for specific antibody production.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence



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MASMTGGQQMGRGHHHHHENLYFQGGEFESADFYEAEPRPPMSSHQSPPHAPSSAAFGFPRG
AGPAQPPAPPAAPEPLGGICEHETSIDISAYIDPAAFNDEFFLADLFQHSRQQEKAKAAVGPTGG
GGGGDFDYPGAPAGPGGAVMPGAHGPPPGYGC_AAGYLDGRLEPLYERVGAPALRPLVIKQEP
REEDEAKQLALAGLFPYQPPP_{PP}SHPHPPAHLAAPHLQFQIAHCQTTMHLQPGHPTPP
PTPVPSPHPAPALGAAGLPGPGSALKGLGAAHPDLRASGGSGAGKAKKSVDKNSNEYVRERRRN
NIAVRKSRDKAKQRNVETQQKVLELTSDNDRLRKVEQLSRELDTLRGIFRQLPESSLVKAMGN
CA