



LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant Human NFIL3 Protein
Catalog Number: hTF-1761
Manufacturer: LD Biopharma, Inc.

Introduction

The protein encoded by human Nuclear Factor Interleukin-3-regulated protein (NFIL3) gene is a transcriptional regulator that binds (G/A)TTTA(C/T)GTAA(C/T) as a homodimer to activating transcription factor (ATF) sites in many cellular and viral promoters. The encoded protein represses PER1 and PER2 expression and therefore plays a role in the regulation of circadian rhythm. It competes for the same consensus-binding site with PAR DNA-binding factors (DBP, HLF and TEF). It is a component of the circadian clock that acts as a negative regulator for the circadian expression of PER2 oscillation in the cell-autonomous core clock. NFIL3 can protect pro-B cells from programmed cell death. NFIL3 activates transcription from the interleukin-3 promoter in T-cells. Recent data indicated that NFIL3 plays a role in regulating differentiation of pathogenic Th17 cells and boosts the generation of protective Th1 cells via Erk1/2 and the transactivation of the IL-10 promoter by ROR- α .

Full-length human NFIL3 cDNA (461 aa) was constructed with codon optimization gene synthesis technology and expressed with a small T7-His-TEV cleavage site Tag (31aa) fusion at its N-terminal. This protein is 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: NFIL3 (E4BP4; IL3BP1; NF-IL3A)
Accession Number: NP_005375.2
Species: Human
Size: 50 μ g / 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 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

Mauricio F, et al., *Melatonin contributes to the seasonality of multiple sclerosis relapses*. Cell. Vol 162. Issue 6. Pp: 1338-1352 (2015)



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Tamai S, et al., *Neuroprotective role of the basic leucine zipper transcription factor NFIL3 in models of amyotrophic lateral sclerosis* J. Biol. Chem. 289 (3), 1629-1638 (2014)

Keniry M, et al., *Survival factor NFIL3 restricts FOXO-induced gene expression in cancer*. Genes Dev. 27 (8), 916-927 (2013)

Zhao M, et al., *E4BP4 overexpression: a protective mechanism in CD4+ T cells from SLE patients*. J. Autoimmun. 41, 152-160 (2013)

Tong X, et al., *Recruitment of histone methyltransferase G9a mediates transcriptional repression of Fgf21 gene by E4BP4 protein*. J. Biol. Chem. 288 (8), 5417-5425 (2013)

Applications

1. May be used for in vitro NFIL3 mediated gene transcription regulation study for Th1 & Th17 cells through Erk1/2 signaling pathway by intracellular delivery of this protein with ProFectin reagent.
2. May be used for mapping NFIL3 protein-protein interaction assay.
3. May be used as specific substrate protein for kinase and ubiquitin (Sumo pathway) related enzyme functional screening assays.
4. Potential biomarker protein for monitoring T cell functions in various auto-immuno-diseases, such as multiple sclerosis relapses.
5. May be used for specific antibody production.

Quality Control

Purity: > 90% by SDS-PAGE.

Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHENLYFQGGEFGS~~QLRKMQTVKKEQASLDASSNVDKMMVLNSALTE~~
VSEDSTTGEELLLSEGSVGKNKSSACRRKREFIPDEK~~KDAMYWEKRRKNNEAAKRSREKRRRLND~~
LVLENKLIALGEENATLKAELLSLKLKFLGISSTAYAQEIQKLSNSTAVYFQDYQTSKSNVSSF
VDEHEPMSMVSSSCISVIKHSPQSSLSDVSEVSSVEHTQESSVQGS~~CRSPENKFQIIKQEPMELE~~
SYTREPRDDRGSYTASIIYQNYMGN~~SFSGYSHSPPLLQVNRSSNSPRTSETDDGVVGGKSSDGED~~
EQQVPKGP~~IHSPVELKHVHATVVKVPEVNSSALPHKLR~~IKAKAMQIKVEAFDNEFEATQKLSSP
IDMTSKRHFELEKHSAPSMVHSSLTPFSVQVTNIQDWSL~~KSEHWHQKELSGKTQNSFKTG~~VVEM~~~~
KDSGYKVSDPENLYLKQGIANLSAEVVSLKRLIATQPISASDSG