



LD Biopharma, Inc.
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- PRODUCT DATA SHEET -

Name of Product: Recombinant YFP-Human **SPT4H** Protein
Catalog Number: HTF-3887
Manufacturer: LD Biopharma, Inc. USA

Introduction

In gene expression, DSIF (DRB Sensitivity Inducing Factor) is a protein that can either negatively or positively affect transcription by RNA polymerase II (Pol II). In one case of negative regulation, it can interact with negative elongation factor (NELF) to promote the stalling of Pol II at some genes. This stalling is relieved by P-TEFb. In humans, DSIF is composed of Human **SPT4H** and SPT5H (SPT4 and SPT5 are homologs in yeast). DSIF can also positively regulate transcriptional elongation and is required for the efficient activation of transcriptional elongation by the HIV-1 nuclear transcriptional activator, Tat. DSIF acts to suppress transcriptional pausing in transcripts derived from the HIV-1 LTR and blocks premature release of HIV-1 transcripts at terminator sequences.

Full-length human SPT4H cDNA (116aa) was constructed with codon optimization gene synthesis and expressed with YFP Protein as N-terminal (YFP; 256aa) fusion protein 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:	SPT4H (SUPT4H1)
Accession Number:	NP_003159
Species:	Human
Size:	50µg / Vial
Composition:	1.0mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose, DTT and others.
Storage:	In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least two weeks.

Key References



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Krasnopolsky S, et al., *CRISPRi-mediated depletion of Spt4 and Spt5 reveals a role for DSIF in the control of HIV latency*. Biochim Biophys Acta Gene Regul Mech 1864 (1), 194656 (2021)

Naguib A, et al., *SUPT4H1 Depletion Leads to a Global Reduction in RNA*. Cell Rep 26 (1), 45-53 (2019)

Applications

1. May be used for in vitro SPT4H protein mediated gene transcription elongation regulation for various cells' study using intracellular delivery of recombinant human YFP-SPT4H protein with protein delivery reagent such as ProFectin.
2. May be used for SPT4H protein-protein interaction assay.
3. May be used as specific substrate protein for SPT4H specific kinase, and ubiquitin (Sumo pathway) related enzyme functional screening assays.
4. Potential therapeutic target protein, modulating SPT4H activity may be benefit for HIV1 treatment by re-activate HIV-1 latent infection in vivo, when combined with anti-viral drugs treatment for eliminating HIV-1 infection.
5. As native human SPT4H antigen for its specific antibody production.

Quality Control

Purity: > 92 % by SDS-PAGE.

YFP protein: **Ex λ** = 517nm, and **Em λ** = 530nm.

Recombinant **YFP**- Human SPT4H Fusion Protein Sequence (42.3 kD)

MK**HHHHH**QVSKGEELFTGVVPILVELDGDVNGHKFSVSGEGEGDATYGKLTLLKLLCTTGKLPV
PWPTLVTTTLGYGVQCFARYPDHMKQHDFKSAPEGYVQERTIFFKDDGNYKTRAEVKFEGDTL
VNRIELKGI~~DFKEDGNI~~LGHKLEYNYN~~SHNVY~~ITADKQKNGIKANFKIRHNI~~EDGGVQLADHYQ~~
QNTPIGDGPVLLPDNHYLSYQSALFKDPNEKRDHMLLEFLTAAGITEGMNELYK**GS**ENLYFQG
EFALETVPKDLRHLRACLLCSLVKTI~~DQFEYDGC~~DNCDAYLQMKGNREMVYDCTSSSF~~FDGI~~IAM
MSPEDSWVSKWQRVSNFKPGVYAVSVTGRLPQGIVRELKSRGVAYKSRDTAIKT