



LD Biopharma, Inc.
7384 Trade Street, Suite B
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- PRODUCT DATA SHEET -

Name of Product: Recombinant YFP-Human **STAT3** Fusion Protein
Catalog Number: HTF-3093
Manufacturer: LD Biopharma, Inc. USA

Introduction

Human signal transducer and activator of transcription 3 (STAT3) gene encodes a signal transducer and transcription activator that mediates cellular responses to interleukins, KITLG/SCF, LEP and other growth factors. Once STAT3 activated, recruits co-activators, such as NCOA1 or MED1, to the promoter region of the target gene. It may mediate cellular responses to activated FGFR1, FGFR2, FGFR3 and FGFR4. STAT3 binds to the IL-6 responsive elements identified in the promoters of various acute-phase protein genes. It activated by IL31 through IL31RA. STAT3 acts as a regulator of inflammatory response by regulating differentiation of naive CD4⁺ T-cells into T-helper Th17 or regulatory T-cells: deacetylation and oxidation of lysine residues by LOXL3, leads to disrupt STAT3 dimerization and inhibit its transcription activity. It is also involved in cell cycle regulation by inducing the expression of key genes for the progression from G1 to S phase, such as CCND1. STAT3 mediates the effects of LEP on melanocortin production, body energy homeostasis and lactation. It may play an apoptotic role by transactivating BIRC5 expression under LEP activation. Cytoplasmic STAT3 represses macro-autophagy by inhibiting EIF2AK2/PKR activity. STAT3 plays a crucial role in basal beta cell functions, such as regulation of insulin secretion.

Full-length human STAT3 cDNA (768aa, Isoform Del-701, derived from BC000627) 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: STAT3 (APRF)
Accession Number: NP_003141
Species: Human
Size: 30 µg / Vial
Composition: 0.3 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

Eroglu, M., et al., *STAT3 expression is correlated with pathological stage in luminal subtypes of breast carcinoma*. Bratisl Lek Listy 121 (1), 51-61 (2020)

Caldenhoven E, et al., *STAT3beta, a splice variant of transcription factor STAT3, is a dominant negative regulator of transcription*. J. Biol. Chem. 271 (22), 13221-13227 (1996)

Akira S, et al., *Molecular cloning of APRF, a novel IFN-stimulated gene factor 3 p91-related transcription factor involved in the gp130-mediated signaling pathway*. Cell 77 (1), 63-71 (1994)

Applications

1. May be used for in vitro STAT3 protein mediated gene transcription regulation for cancer cell study using intracellular delivery of recombinant human STAT3 protein with protein delivery reagent such as ProFectin.
2. May be used for STAT3 protein-protein interaction assay.
3. May be used as specific substrate protein for STAT3 specific kinase, and ubiquitin (Sumo pathway) related enzyme functional screening assays.
4. Potential biomarker protein, for various cancer diagnosis / treatment applications.
5. As native human STAT3 immunogen for its specific antibody production.

Quality Control

Purity: > 85 % by SDS-PAGE.

Recombinant **YFP**- Human STAT3 Fusion Protein Sequence (117.3 kD)

MKHHHHHHQVSKGEELFTGVVPIVLVDGDVNGHKFSVSGEGEGDATYGKLTLLCTTGKLPV
PWPTLVTTGLYGVQCFAFYPDHMKQHDFFKSAMPEGYVQERTIFFKDDGNYKTRAEVKFEGDTL
VNRIELKGI DFKEDGNILGHKLEYNYNSHNVYITADKQKNGIKANFKIRHNIEDGGVQLADHYQ
QNTPIGDGPVLLPDNHYLSYQSALFKDPNEKRDHMLLEFLTAAGITEGMNDLYKGSENLYFQG
EFELAQWNQLQQLDTRYLEQLHQLYSDSFPMELRQFLAPWIESQDWAYAASKESHATLVFHNLL
GEIDQQYSRFLQESNVLYQHNLRRIKQFLQSRYLEKPMEIARIVARCLWEESSRLQLQTAATAAQQ



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GGQANHPTAAVVTEKQQMLEQHLQDVRKRVQDLEQKMKVVENLQDDDFDFNYKTLKSQGDMQDLN
GNNQSVTRQKMQQLEQMLTALDQMRRSIVSELAGLLSAMEYVQKTLTDEELADWKRRQQIACIG
GPPNICLDRLLENWITSLAESQLQTRQQIKKLEELQOKVSYKGDPIVQHRPMLERIVELFRNLM
KSAFVVERQPCMPMHPDRPLVIKTVQFTTKVRLLVKFPPELNYQLKIKVICDKDSGDVAALRGS
RKFNILGTNTKVMNMEESSNNGSLSAEFKHLTLREQRCGNGGRANCDASLIVTEELHLITFETEV
YHQGLKIDLETHSLPVVVISNICQMPNAWASILWYNMLTNNPKNVNFFTKPPIGTWDQVAEVLS
WQFSSTTKRGLSIEQLTTLAEKLLGPGVNYSGCQITWAKFCKENMAGKGFSEFWVLDNIIDLK
KYILALWNEGYIMGFISKERERAILSTKPPGTFLLRFSSESSKEGGVTFTWVEKDISGKTQIQSV
EPYTKQQLNMSFAEIIIMGYKIMDATNILVSPVLYLYPDI PKEEAFGKYCRPESQEHPEADPGA
APYLKTKFICVTPTTCSNTIDLPMSPRTLDSLMOFGNNGEGAEP SAGGQFESLTFDMELTSECA
TSPM