



**LD Biopharma, Inc.**  
7384 Trade Street, Suite B  
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<http://www.ldbiopharma.com>

## **- PRODUCT DATA SHEET -**

**Name of Product:** Recombinant YFP-Human **DRP1** Protein  
**Catalog Number:** HRP-4233  
**Manufacturer:** LD Biopharma, Inc. USA

### **Introduction**

Human dynamin-related protein 1 (DRP1) gene encodes a protein which plays a role in mitochondrial and peroxisomal division. It mediates membrane fission through oligomerization into membrane-associated tubular structures that wrap around the scission site to constrict and sever the mitochondrial membrane through a GTP hydrolysis-dependent mechanism. Through its function in mitochondrial division, it ensures the survival of at least some types of postmitotic neurons, including Purkinje cells, by suppressing oxidative damage. DRP1 is also required for normal brain development, including that of cerebellum. It facilitates developmentally regulated apoptosis during neural tube formation. DRP1 is required for a normal rate of cytochrome c release and caspase activation during apoptosis; this requirement may depend upon the cell type and the physiological apoptotic cues. DRP1 plays an important role in mitochondrial fission during mitosis. DRP1 is required for formation of endocytic vesicles. It also proposed to regulate synaptic vesicle membrane dynamics through association with BCL2L1 isoform Bcl-X(L) which stimulates its GTPase activity in synaptic vesicles; the function may require its recruitment by MFF to clathrin-containing vesicles. DRP1 is required for programmed necrosis execution. Recent data indicated that DRP1 also plays a key role in tumor acidosis adaptations, as such blocking DRP1 activity maybe benefits for cancer therapy.

Full-length human DRP1 cDNA (710aa, Isoform-II, derived from BC024590) 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.

<b>Gene Symbol:</b>	DRP1	(DNM1L; DLP1)
<b>Accession Number:</b>	NP_071440	
<b>Species:</b>	Human	
<b>Size:</b>	50µg / Vial	



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**Composition:** 1 mg/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

Groessl S, et al., ***Acidosis orchestrates adaptations of energy metabolism in tumors***. Science 2025, DOI:10.1126/science.adp7603

Peng,Y., et al., ***Young small extracellular vesicles rejuvenate replicative senescence by remodeling Drp1 translocation-mediated mitochondrial dynamics***. J Nanobiotechnology 22 (1), 543 (2024)

Ghani,M., et al., ***Serine 39 in the GTP-binding domain of Drp1 is involved in shaping mitochondrial morphology***. FEBS Open Bio 14 (7), 1147-1165 (2024)

## Applications

1. May be used for in vitro DRP1 protein mediated mediates mitochondrial and peroxisomal division pathway regulation various cell study using intracellular delivery of recombinant human YFP-DRP1 protein with protein delivery reagent such as ProFectin.
2. May be used for DRP1 protein-protein interaction assay.
3. May be used as specific substrate protein for DRP1 specific kinase, and ubiquitin (Sumo pathway) related enzyme functional screening assays.
4. Potential therapeutic protein, modulating DRP1 activity may be benefit for inhibition of cancer cell acidic adaptation capacity to enhance cancer therapy efficiency.
5. As native human DRP1 antigen for its specific antibody production.

## Quality Control

Purity: > 93 % by SDS-PAGE.

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



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## Recombinant **YFP**- Human DRP1 Fusion Protein Sequence (108.5 kD)

MKHHHHHHQVSKGEELFTGVVPILVELDGDVNGHKFSVSGEGEGDATYGKLTLLKLLCTTGKLPVPWPTLV  
TTLGYGVQCFAFYPDHMKQHDFFKSAMPEGYVQERTIFFKDDGNYKTRAEVKFEGDTLVNRIELKGIDFK  
EDGNILGHKLEYNNSHNVIITADKQKNGIKANFKIRHNIEDGGVQLADHYQQNTPIGDGPVLLPDNHYL  
SYQSALFKDPNEKRDHMLLEFLTAAGITEGMNELYKGS~~ENLYFQGEF~~FEALIPVINKLQDVFNTVGADII  
QLPQIVVVGTSQSSGKSSVLESLVGRDLLPRGTGIVTRRPLILQLVHVSQEDKRKTTEENGVEAEWGF  
LHTKNKLYTDFDEIRQEIEETERISGNNKGVSEPIHLKIFSPNVNLTLLVDLPGMTKVPVGDQPKDIE  
LQIRELILRFISNPNSIILAVTAANTDMATSEALKISREVDPDGRRTLAVITKLDLMDAGTDAMDVLMGR  
VIPVKLGIIGVVNRSQLDINNKKSVTDSIRDEYAFLLQKKYPSLANRNGTKYLARTLNRLMHHIRDCLPE  
LKTRINVLAAYQYQSLNSYGEFVDDKSATLLQLITKFATEYCNTEGTAKYIETSELGGARICYIFHET  
FGRTLESVDPLGGLNTIDILTAIRNATGPRPALFVPEVSFELLVKRQIKRLEEPSLRVELVHEEMQRII  
QHCSNYSTQELLRFPKLHDAIVEVVTCLLRKRLPVTNEMVHNLVAIELAYINTKHPDFADACGLMNNNIE  
EQRRNRLARELPSAVSRDKLIQDSRRETKNVASGGGGVGDGVQEPTTGNWRGMLKTSKAEELLAEEKSKP  
IPIMPASPQKGHAVNLLDVPVPVARKLSAREQRDCEVIERLIKSFLIVRKNIQDSVPKAVMHFLVNHVK  
DTLQSELVGQLYKSSLLDDLLTESEDMAQRRKEAADMLKALQGASQIIAEIRETHLW