



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

## - PRODUCT DATA SHEET -

**Name of Product:** Recombinant Human **COL3A1** C-terminal Protein  
**Catalog Number:** HRP-3270  
**Manufacturer:** LD Biopharma, Inc. USA

### Introduction

Human Collagen type III protein (COL3A1) occurs in most soft connective tissues along with type I collagen. It is involved in regulation of cortical development. It is the major ligand of ADGRG1 in the developing brain and binding to ADGRG1 inhibits neuronal migration and activates the RhoA pathway by coupling ADGRG1 to GNA13 and possibly GNA12. Naturally, 1466aa of precursor protein of Collage-III will be processed to N-terminal propetide (24-153aa) and mature collagen-III (154-1221aa) and its C-terminal domain (1222-1466aa) which also known as COLFI domain. The COL3A1 C-terminal domain have crucial roles in tissue growth and repair by controlling both the intracellular assembly of procollagen molecules and the extracellular assembly of collagen fibrils. It binds a calcium ion which is essential for its function.

Full-length C-terminal domain (245aa) of human Collagen-III cDNA (1222 - 1466aa) 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 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>	COL3A1- COLFI	(EDS4A; EDSVASC; PMGEDSV)
<b>Accession Number:</b>	NP_000081	
<b>Species:</b>	Human	
<b>Size:</b>	100 µg / Vial	
<b>Composition:</b>	2.0 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose, DTT and others.	
<b>Storage:</b>	In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.	

### Key References



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Karayi AK, et al., *Human skin fibrosis: up-regulation of collagen type III gene transcription in the fibrotic skin nodules of lower limb Lymphedema*. Trop Med Int Health 25 (3), 319-327 (2020)

Engqvist H, et al., *Immunohistochemical validation of COL3A1, GPR158 and PITHD1 as prognostic biomarkers in early-stage ovarian carcinomas*. BMC Cancer 19 (1), 928 (2019)

Kuivaniemi H et al., *Type III collagen (COL3A1): Gene and protein structure, tissue distribution, and associated diseases*. Gene 707, 151-171 (2019)

Jean-Marie Bourhis, et al., *Structure basis of fibrillar collagen trimerization and related genetic disorders*. Nat Struct Mol Biol. Oct;19(10): 1031-6. (2012)

## Applications

1. May be used for in vitro Collagen-III mediated cell attachment or receptor activation regulation study in vitro for various cells with this recombinant Collagen-III C-terminal domain protein either as soluble factor or as coating matrix protein.
2. May be used for COL3A1 C-terminal protein-protein interaction assay.
3. Potential diagnostic protein, such as for monitoring ovarian carcinomas.
4. As native human COL3A1 C-terminal domain antigen for specific antibody production.

## Quality Control

Purity: > 93% by SDS-PAGE.

## Recombinant **AFPn**-COL3A1 C-terminal Domain Protein Sequence: (52 kD)

**MTLHRNEYGIASILDSYQCTAEISLADLATIFFAQFVQEQEATYKEVSKMVKDALTAIEKPTGDEQ  
SSGCLLENQLPAFLEELCHEKEILEKYGHSDCCSQSEEGRHNCFLAHKKPTPASIPLFQVPEPVT  
SCEAYEEDRETFMNFYIYIARRHPFLYAPTILLWAARYDKIIPSCCKAENAVECFQTKAATVT  
KELRESSGGSHHHHHGSENLYFQG**DEPMDFKINTDEIMTSLKSVNGQIESLISPDGSRKNPAR  
NCRDLKFCHPELKSGEYWVDPNQCKLDAIKVFCNMETGETCISANPLNVPRKHWWTDSSAEKK



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HVWFGESMDGGFQFSYGNPELPEDVLDVHLAFLRLLSSRASQNIYHCKNSIAYMDQASGNVKK  
ALKLMGSNEGEFKAEGNSKFTYTVLEDGCTKHTGEWSKTVFEYRTRKAVRLPIVDIAPYDIGGP  
DQEFGVDPVPCFL