



**LD Biopharma, Inc.**  
9924 Mesa Rim Road Suite B  
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<http://www.ldbiopharma.com>

## - PRODUCT DATA SHEET -

**Name of Product:** Recombinant Human SMAD2 Protein  
**Catalog Number:** hRP-0498  
**Manufacturer:** LD Biopharma, Inc.

### Introduction

The protein encoded by human mothers against decapentaplegic homolog 2 (SMAD2) gene belongs to the SMAD, a family of proteins similar to the gene products of the *Drosophila* gene 'mothers against decapentaplegic' (Mad) and the *C. elegans* gene Sma. SMAD proteins are signal transducers and transcriptional modulators that mediate multiple signaling pathways. This protein mediates the signal of the transforming growth factor (TGF)-beta, and thus regulates multiple cellular processes, such as cell proliferation, apoptosis, and differentiation. SMAD2 protein is recruited to the TGF-beta receptors through its interaction with the SMAD anchor for receptor activation (SARA) protein. In response to TGF-beta signal, this protein is phosphorylated by the TGF-beta receptors. The phosphorylation induces the dissociation of this protein with SARA and the association with the family member SMAD4. The association with SMAD4 is important for the translocation of SMAD2 into the nucleus, where it binds to target promoters and forms a transcription repressor complex with other cofactors. This protein can also be phosphorylated by activin type 1 receptor kinase, and mediates the signal from the activin.

Full-length recombinant human SMAD2 cDNA was constructed with codon optimization and expressed with a small T7-His-TEV cleavage site Tag (29aa) fusion at its N-terminal. This protein was expressed in *E. coli* as inclusion bodies, refolded using our unique "temperature shift inclusion body refolding" technology and chromatographically purified.

**Gene Symbol:** SMAD2 (hMAD-2; JV18; MADH2; MADR2)  
**Accession Number:** NP\_005892  
**Species:** Human  
**Size:** 50 µg / Vial  
**Composition:** 0.2 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, arginine, DTT and Glycerol.



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**Storage:** In Liquid. Keep at -20°C for long term storage. Product is stable at 4 °C for at least 30 days.

## Key References

Zhang, Y., et al. *Receptor-associated Mad homologues synergize as effectors of the TGF-beta response.* Nature 383 (6596), 168-172 (1996)

Yoon, S.J., et al. *HEB and E2A function as SMAD/FOXH1 cofactors.* Genes Dev. 25 (15), 1654-1661 (2011)

Sanchez, L., et al., *Enrichment of human ESC-derived multipotent mesenchymal stem cells with immunosuppressive and anti-inflammatory properties capable to protect against experimental inflammatory bowel disease.* Stem Cells 29 (2), 251-262 (2011)

## Applications

1. May be used for human SMAD2 functional regulation study in vitro,
2. May be used as specific substrate protein for kinase and ubiquitin enzymes.
3. May be used for specific antibody production.

## Quality Control

1. Purity: > 90% by SDS-PAGE.

## Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHGNLYFQGGEFSSILPFTPPVVKRLLGWKKSAGGSGGAGGGEQNGQ  
EEKWCEKAVKSLVKLKKKTGRLDELEKAITTQNCNTKCVTIPTSTCSEIWGLSTPNTIDQWDTTG  
LYSFSEQTRSLDGRLQVSHRKGLPHVIYCRLWRWPDLHSHHELKAIENCEYAFNLKKDEVCVNP  
YHYQRVETPVLPPVLVPRHTEILTELPLDDYTHSIPENTNFPAGIEPQSNIYIPETPPPGYISE  
DGETSDQQLNQSMDTGSPAELSPTTSLSPVNHSLDLQPVTYSEPAFWCSIAYYELNQRVGETFHA  
SQPSLTVDFGFTDPSNSERFCLGLLSNVNRNATVEMTRRHIGRGVRLYYIGGEVFAECLSDSAIF  
VQSPNCNQRYGWHPATVCKIPPGCNLKI FNNQEF AALLAQSVNQGF EAVYQLTRMCTIRMSFVK  
GWGAEYRRQTVTSTPCWIELHLNGLQWLDKVL TQMGSPSVRCSSMS