



**LD Biopharma, Inc.**  
9924 Mesa Rim Road Suite B  
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Tel: 858-876-8266  
<http://www.ldbiopharma.com>

## - PRODUCT DATA SHEET -

**Name of Product:** Recombinant Human TAB1 Protein  
**Catalog Number:** hRP-1206  
**Manufacturer:** LD Biopharma, Inc.

### Introduction

The protein encoded by this gene was identified as a regulator of the MAP kinase kinase kinase MAP3K7/TAK1, which is known to mediate various intracellular signaling pathways, such as those induced by TGF beta, interleukin 1, and WNT-1. This protein interacts and thus activates TAK1 kinase. It has been shown that the C-terminal portion of this protein is sufficient for binding and activation of TAK1, while a portion of the N-terminus acts as a dominant-negative inhibitor of TGF beta, suggesting that this protein may function as a mediator between TGF beta receptors and TAK1. This protein can also interact with and activate the mitogen-activated protein kinase 14 (MAPK14/p38alpha), and thus represents an alternative activation pathway, in addition to the MAPKK pathways, which contributes to the biological responses of MAPK14 to various stimuli. The interdependence of p53 and MDM2 is critical for proper cell survival and cell death. Recent data indicated that human *TAB1*, an activator of TAK1 and p38 $\alpha$ , inhibits the E3 ligase activity of MDM2 toward p53 and its homolog, MDMX. Cisplatin-induced cell death is mitigated by TAB1 knockdown. TAB1 stabilizes MDMX and activates p38 $\alpha$  to phosphorylate p53, allowing p53 target induction. TAB1 levels are relatively low in cisplatin-resistant clones of ovarian cells and in ovarian tumors, implicating TAB1 as a tumor suppressor.

Full-length human TAB1 cDNA (504aa, Isoform-I, which derived from BC050554) was constructed with codon optimization and expressed with a small T7-His-TEV cleavage site Tag (29aa) fusion at its N-terminal. This protein is expressed 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:** TAB1 (MAP3K7IP1; “3”-Tab1)  
**Accession Number:** NP\_006107  
**Species:** Human  
**Size:** 40  $\mu$ g / Vial



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**Composition:** 0.4 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, arginine, DTT and Glycerol.

**Storage:** In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 30 days.

## Key References

Yan Zhu, et al., *Cisplatin causes cell death via TAB1 regulation of p53 / MDM2 / MDMX circuitry*. Genes Dev. August 15, 2013 27: 1739-1751;

Morioka,S., et al., *TAK1 kinase signaling regulates embryonic angiogenesis by modulating endothelial cell survival and migration*. Blood 120 (18), 3846-3857 (2012)

Gardner,A., et al., *The critical role of TAK1 in accentuated epithelial to mesenchymal transition in obliterative bronchiolitis after lung transplantation*. Am. J. Pathol. 180 (6), 2293-2308 (2012)

## Applications

1. May be used for in vitro TAB1 mediated p53 pathway activities regulation study by intracellular delivery recombinant TAB1 protein with “ProFectin” reagent.
2. May be used as TAB1 protein-protein interaction assay.
3. As specific substrate protein for kinases and ubiquitin (Sumo pathway) related enzyme functional screening assays.
4. Potential biomarker protein for various cancer diagnoses.
5. As antigen for specific antibody production.

## Quality Control

Purity: > 90% by SDS-PAGE.

## Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHGNLYFQGGFEAAQRRSLQSEQQPSWTDDLPLCHLSGVGSASNRS  
YSADGKGTESHPPEDSWLKFRSENNCFLYGVFNQYDGNRVTFVAQRLSAELLGQLNAEHAEA  
DVRRVLLQAFDVVERSFLSIDDALAEKASLQSQLPEGVPOHQLPPQYQKILERLKTLEREISG  
GAMAVVAVLLNKNLYVANVGTNRALLCKSTVDGLQVTQLNVDHTTENEDELFRLSQLGLDAGKI



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KQVGIICGQESTRRIGDYKVKYGYTDIDLLSAAKSKPIIAEPEIHGAQPLDGVTGFLVLMSEGL  
YKALEAAHGPGQANQEIAAMIDTEFAKQTSLEDAVAQAVVDRVKRIHSDTFASGGERARFCPRHE  
DMTLLVRNFGYPLGEMSQPTPSPAPAAGGRVYPVSVPYSSAQSTSKTSVTLSLVMPSQGQMVNG  
AHSASTLDEATPPLTNQSPTLTLQSTNTHTQSSSSSSDGGLFRSRPAHSLPPGEDGRVEPYVDF  
AEFYRLWSVDHGEQSVVTAP