



**LD Biopharma, Inc.**  
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## - PRODUCT DATA SHEET -

**Name of Product:** Recombinant Human CBX5 Protein  
**Catalog Number:** hTF-1750  
**Manufacturer:** LD Biopharma, Inc.

### Introduction

Human chromobox protein homology 5 (CBX5, also named as HP1a) gene encodes a highly conserved nonhistone protein, which is a member of the heterochromatin protein family. The protein is enriched in the heterochromatin and associated with centromeres. CBX5 has a single N-terminal chromodomain which can bind to histone proteins via methylated lysine residues, and a C-terminal chromo shadow-domain (CSD) which is responsible for the homodimerization and interaction with a number of chromatin-associated non-histone proteins. CBX5 is involved in the formation of functional kinetochore through interaction with essential kinetochore proteins. Recently, CBX5 has been demonstrated to be a key regulator for controlling endothelial progenitor cell differentiation in vitro.

Full-length human CBX5 cDNA (190 aa) was constructed with codon optimization gene synthesis technology and expressed with a small T7-His-TEV cleavage site Tag (29aa) fusion at its N-terminal. It was 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:** CBX5 (HEL25; HP1; HP1a)  
**Accession Number:** NP\_036249  
**Species:** Human  
**Size:** 50 µg / Vial  
**Composition:** 1.0 mg/ml, sterile-filtered, in 20 mM pH 8.0 Tris-HCl Buffer, with proprietary formulation of NaCl, KCl, EDTA, Sucrose and DTT.  
**Storage:** In Liquid. Keep at -80°C for long term storage. Product is stable at 4 °C for at least 7 days.

### Key References

Maeng YS, et al., *Heterochromatin Protein 1 alpha (HP1a: CBX5) is a key regulator in*



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*differentiation of endothelial progenitor cells to endothelial cells. Stem Cells. 33(5): 1512 -1522. (2015).*

Kubota S, et al., *Phosphorylation of KRAB-associated protein 1 (KAP1) at Tyr-449, Tyr-458, and Tyr-517 by nuclear tyrosine kinases inhibits the association of KAP1 and heterochromatin protein 1alpha (HP1alpha) with heterochromatin. J. Biol. Chem. 288 (24), 17871-17883 (2013)*

Han B, et al., *The expression of heterochromatin protein 1alpha/beta in the kidney tumors: a microarray immunohistochemical study. Ann Diagn Pathol 17 (2), 172-175 (2013)*

Soria G et al., *Differential contribution of HP1 proteins to DNA end resection and homology-directed repair. Cell Cycle 12 (3), 422-429 (2013)*

## **Applications**

1. May be used for in vitro CBX5 mediated gene transcription regulation for endothelial cell study by intracellular delivery of this protein with “ProFectin” reagent.
2. May be used for mapping CBX5 protein-protein interaction.
3. May be used as specific protein substrate for kinase and ubiquitin (Sumo pathway) related enzyme functional screening assays.
4. Potential biomarker protein for kidney tumor diagnosis.
5. As immunogen for specific antibody production.

## **Quality Control**

Purity: > 90% by SDS-PAGE.

## **Recombinant Protein Sequence**

MASMTGGQQMGRGHHHHHHENLYFQGGEFGKTKRRTADSSSEDEEEYVVEKVLDRRVVKGQVE  
YLLKWKGFSEEHNTWEPEKNLDCPELISEFMKKYKKMKEGENNKPREKSESNKRKSNFSNSADD  
IKSKKKREQSNDIARGFERGLEPEKIIIGATDSCGDLMLMKWKDTDEADLVLAKEANVKCPQIV  
IAFYEERLTWHAYPEDAENKEKETAKS