



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

**Name of Product:** Recombinant Human CBX3 Protein  
**Catalog Number:** hTF-1538  
**Manufacturer:** LD Biopharma, Inc.

### Introduction

At the nuclear envelope, the nuclear lamina and heterochromatin are adjacent to the inner nuclear membrane. The protein encoded by human chromobox protein homolog 3 (CBX3) gene binds DNA and is a component of heterochromatin. CBX3 protein also can bind lamin B receptor, an integral membrane protein found in the inner nuclear membrane. The dual binding functions of the CBX3 protein may explain the association of heterochromatin with the inner nuclear membrane. CBX3 protein binds histone H3 tails trimethylated at Lys-9 sites to mediate the recruitment of the methyltransferases SUV39H1 and/or SUV39H2 by the PER complex to the E-box elements of the circadian target genes such as PER2 itself or PER1. CBX3 protein is also recruited to sites of ultraviolet-induced DNA damage and double-strand breaks. Two transcript variants encoding the same protein but differing in the 5' UTR, have been found for CBX3 gene.

Full-length human CBX3 cDNA (182aa) was constructed with codon optimization technology 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. It was refolded using our unique “temperature shift inclusion body refolding” technology and chromatographically purified.

**Gene Symbol:** CBX3 (HECH; HP1-gamma)  
**Accession Number:** NP\_009207  
**Species:** Human  
**Size:** 30 µg / Vial  
**Composition:** 0.30 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 7 days.



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## Key References

Morikawa K, et al., *Heterochromatin protein 1 gamma overexpression in P19 embryonal carcinoma cells elicits spontaneous differentiation into the three germ layers*. *Biochem. Biophys. Res. Commun.* 431 (2), 225-231 (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)

Slezak J, et al., *HP1 gamma expression is elevated in prostate cancer and is superior to Gleason score as a predictor of biochemical recurrence after radical prostatectomy*. *BMC Cancer* 13, 148 (2013)

Saini V, et al., *Identification of CBX3 and ABCA5 as putative biomarkers for tumor stem cells in osteosarcoma*. *PLoS ONE* 7 (8), E41401 (2012)

## Applications

1. May be used for in vitro CBX3 mediated histone H3 tails trimethylated at Lys-9 sites regulation for *DNA damage-repair pathway* study with “ProFectin” reagent based intracellular delivery of this protein.
2. May be used as specific protein substrate for kinase and ubiquitin (Sumo pathway) related enzyme functional screening assays.
3. May be used for CBX3 protein-protein interaction mapping.
4. As immunogen for specific antibody production.

## Quality Control

Purity: > 90% by SDS-PAGE.

## Recombinant Protein Sequence

MASMTGGQQMGRGHHHHHENLYFQGASNKTTLQKMGKKQNGKSKKVEEAEPEEFVVEKVLDRR  
VVNGKVEYFLKWKGF~~T~~DADNTWEPEENLD~~C~~PELIEAFLNSQKAGKEKDGTKR~~K~~SLSDSESD~~D~~SK  
SKKKRDAADKPRGFARGLDPERIIGATDSSGELMFLMKWKDSDEADLVLAKEANMKCPQIVIAF  
YEERL~~T~~WHSCPEDEAQ