

# PRODUCT INFORMATION



## CBX5 (human recombinant)

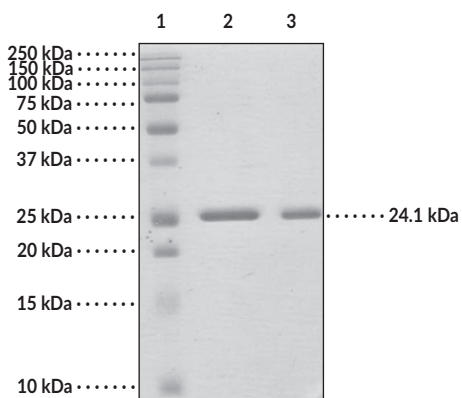
Item No. 11235

### Overview and Properties

**Synonyms:** Antigen p25, Chromobox Protein Homolog 5, Heterochromatin Protein 1- $\alpha$ , HP1- $\alpha$   
**Source:** Recombinant N-terminal His-tagged protein expressed in *E. coli*  
**Amino Acids:** 2-191 (full length)  
**Molecular Weight:** 24.1 kDa  
**Storage:** -80°C (as supplied); avoid freeze/thaw cycles by aliquoting protein  
**Stability:**  $\geq 6$  months  
**Purity:**  $\geq 95\%$  estimated by SDS-PAGE  
**Supplied in:** 50 mM Tris-HCl, pH 8.0, with 150 mM sodium chloride and 20% glycerol  
**Protein Concentration:** *batch specific* mg/ml

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

### Image



Lane 1: MW Markers  
Lane 2: CBX5 (5  $\mu$ g)  
Lane 3: CBX5 (2.5  $\mu$ g)

SDS-PAGE Analysis of CBX5.

WARNING  
THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA  
This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY  
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## Description

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The heterochromatin protein 1 (HP1) family, which consists of three isoforms HP1 $\alpha$  (CBX5), HP1 $\beta$  (CBX1) and HP1 $\gamma$  (CBX3) are chromatin-associated proteins involved in gene regulation and heterochromatin formation.<sup>1</sup> CBX proteins have an N-terminal chromodomain, a C-terminal chromoshadow domain, and a hinge domain which connects the two.<sup>2</sup> Extensive post-translational modifications have been observed and mapped on the CBX proteins.<sup>3</sup> The chromodomain of CBX5 has been shown to recognize di- and tri-methylated lysine 9 on histone H3 (H3K9me2 and H3K9me3), with a preference for H3K9me3. Binding of CBX5 to methylated histones leads to gene silencing and heterochromatin formation.<sup>1,4</sup> H3K9 trimethylation by the methyltransferase SETDB1 creates a binding site for recruitment of CBX5, leading to chromatin condensation and gene silencing.<sup>5</sup> The chromoshadow domain facilitates protein-protein interactions like homodimerization and recruitment of nuclear proteins involved in transcriptional regulation.<sup>6</sup> The chromoshadow domain is also responsible for recruitment to sites of DNA damage, where CBX5 helps to reorganize chromatin as part of the DNA damage response system.<sup>7</sup>

## References

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