

**HP1 $\beta$  (D2F2) XP<sup>®</sup> Rabbit mAb**

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**For Research Use Only. Not for Use in Diagnostic Procedures.**

<b>Applications:</b> W, IP, IF-IC, ChIP, ChIP-seq, C&R	<b>Reactivity:</b> H M R Mk	<b>Sensitivity:</b> Endogenous	<b>MW (kDa):</b> 25	<b>Source/Isotype:</b> Rabbit IgG	<b>UniProt ID:</b> #P83916	<b>Entrez-Gene Id:</b> 10951
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**Product Usage Information**

For optimal ChIP and ChIP-seq results, use 10  $\mu$ l of antibody and 10  $\mu$ g of chromatin (approximately 4 x 10<sup>6</sup> cells) per IP. This antibody has been validated using SimpleChIP<sup>®</sup> Enzymatic Chromatin IP Kits.

The CUT&RUN dilution was determined using CUT&RUN Assay Kit #86652.

**Application**

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50
Immunofluorescence (Immunocytochemistry)	1:800
Chromatin IP	1:50
Chromatin IP-seq	1:50
CUT&RUN	1:50

**Storage**

Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100  $\mu$ g/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. Do not aliquot the antibody.

**Specificity/Sensitivity**

HP1 $\beta$  (D2F2) XP<sup>®</sup> Rabbit mAb recognizes endogenous levels of total HP1 $\beta$  protein. This antibody does not cross-react with other HP1 proteins, including HP1 $\alpha$  and HP1 $\gamma$ .

**Species predicted to react based on 100% sequence homology**

Hamster, Bovine, Guinea Pig

**Source / Purification**

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Gln69 of human HP1 $\beta$  protein.

**Background**

Heterochromatin protein 1 (HP1) is a family of heterochromatic adaptor molecules involved in both gene silencing and higher order chromatin structure (1). All three HP1 family members ( $\alpha$ ,  $\beta$ , and  $\gamma$ ) are primarily associated with centromeric heterochromatin; however, HP1 $\beta$  and  $\gamma$  also localize to euchromatic sites in the genome (2,3). HP1 proteins are approximately 25 kDa in size and contain a conserved amino-terminal chromodomain, followed by a variable hinge region and a conserved carboxy-terminal chromoshadow domain. The chromodomain facilitates binding to histone H3 trimethylated at Lys9, a histone "mark" closely associated with centromeric heterochromatin (4,5). The variable hinge region binds both RNA and DNA in a sequence-independent manner (6). The chromoshadow domain mediates the dimerization of HP1 proteins, in addition to binding multiple proteins implicated in gene silencing and heterochromatin formation, including the SUV39H histone methyltransferase, the DNMT1 and DNMT3a DNA methyltransferases, and the p150 subunit of chromatin assembly factor 1 (CAF-1) (7-9). In addition to contributing to heterochromatin formation and propagation, HP1 and SUV39H1 are also found complexed with retinoblastoma (Rb) and E2F6 proteins, both of which function to repress euchromatic gene transcription in quiescent cells (10,11). HP1 proteins are subject to multiple types of post-translational modifications, including phosphorylation, acetylation, methylation, ubiquitination, and sumoylation, suggesting multiple means of regulation (12-14).

**Background References**

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<b>Species Reactivity</b>	Species reactivity is determined by testing in at least one approved application (e.g., western blot).
<b>Western Blot Buffer</b>	IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween@ 20 at 4°C with gentle shaking, overnight.
<b>Applications Key</b>	<b>W:</b> Western Blotting <b>IP:</b> Immunoprecipitation <b>IF-IC:</b> Immunofluorescence (Immunocytochemistry) <b>ChIP:</b> Chromatin IP <b>ChIP-seq:</b> Chromatin IP-seq <b>C&amp;R:</b> CUT&RUN
<b>Cross-Reactivity Key</b>	<b>H:</b> Human <b>M:</b> Mouse <b>R:</b> Rat <b>Mk:</b> Monkey
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