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PC2 (CBX4) Antibody (N-term)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP2514a

Product Information

Application	WB, IHC-P, E
Primary Accession	O00257
Reactivity	Human, Mouse
Predicted	Rat, Bovine, Canine, Rabbit
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Calculated MW	61368
Antigen Region	80-110

Additional Information

Gene ID	8535
Other Names	E3 SUMO-protein ligase CBX4, 632-, Chromobox protein homolog 4, Polycomb 2 homolog, Pc2, hPc2, CBX4
Target/Specificity	This PC2 (CBX4) antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 80-110 amino acids from the N-terminal region of human PC2 (CBX4).
Dilution	WB~~1:1000 IHC-P~~1:100~500 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is purified through a protein A column, followed by peptide affinity purification.
Storage	Maintain refrigerated at 2-8°C for up to 2 weeks. For long term storage store at -20°C in small aliquots to prevent freeze-thaw cycles.
Precautions	PC2 (CBX4) Antibody (N-term) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	CBX4
Function	E3 SUMO-protein ligase that catalyzes sumoylation of target proteins by promoting the transfer of SUMO from the E2 enzyme to the substrate (PubMed:12679040, PubMed:22467880, PubMed:22825850). Also acts as a histone reader, which specifically recognizes and binds histone H3

trimethylated at 'Lys-9' and 'Lys-27' (H3K9me3 and H3K27me3, respectively) via its chromo domain (By similarity). Catalyzes sumoylation of HNRNPK, a p53/TP53 transcriptional coactivator, hence indirectly regulates p53/TP53 transcriptional activation resulting in p21/CDKN1A expression (PubMed:22825850). Acts as a regulator of brown adipocyte differentiation by mediating sumoylation of PRDM16, thereby preventing PRDM16 ubiquitination and degradation (By similarity). Monosumoylates ZBTB35 (PubMed:22467880). Component of a Polycomb group (PcG) multiprotein PRC1-like complex, a complex class required to maintain the transcriptionally repressive state of many genes, including Hox genes, throughout development (PubMed:12167701, PubMed:19636380, PubMed:21282530). PcG PRC1 complex acts via chromatin remodeling and modification of histones; it mediates monoubiquitination of histone H2A 'Lys-119', rendering chromatin heritably changed in its expressibility (PubMed:12167701, PubMed:19636380, PubMed:21282530). Plays a role in the lineage differentiation of the germ layers in embryonic development (By similarity).

Cellular Location Cytoplasm. Nucleus. Nucleus speckle. Note=Localization to nuclear polycomb bodies is required for ZBTB35 sumoylation (PubMed:22467880) Localized in distinct foci on chromatin (PubMed:18927235)

Tissue Location Ubiquitous.

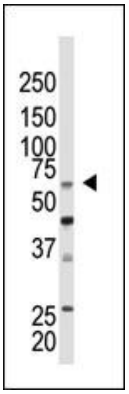
Background

CBX4 is a member of Drosophila Polycomb group gene family. The polycomb group (PcG) genes are essential for maintenance of proper expression patterns of developmental master regulators; changes in expression pf PcG proteins have been associated with cancer. CBX4 is a part of the cellular memory system responsible for the inheritance of gene activity by progeny cells. It participates in maintaining the transcriptionally repressive state of genes. CBX4 is part of acomplex that acts via chromatin remodeling and modification of histones; it mediates monoubiquitination of histone H2A 'Lys-119', rendering chromatin heritably changed in its expressibility. CBX4 is an E3 SUMO-protein ligase which facilitates SUMO1 conjugation by UBE2I.

References

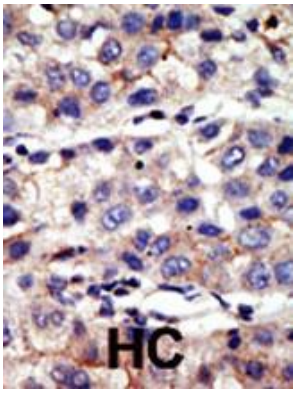
Kagey, M.H., et al., Cell 113(1):127-137 (2003).
Satijn, D.P., et al., Mol. Cell. Biol. 17(10):6076-6086 (1997).

Images



The anti-CBX4 N-term Pab (Cat. #AP2514a) is used in Western blot to detect CBX4 in mouse kidney tissue lysate.

Formalin-fixed and paraffin-embedded human cancer tissue reacted with the primary antibody, which was peroxidase-conjugated to the secondary antibody,



followed by AEC staining. This data demonstrates the use of this antibody for immunohistochemistry; clinical relevance has not been evaluated. BC = breast carcinoma; HC = hepatocarcinoma.

Citations

- Human Polycomb protein 2 promotes □±-synuclein aggregate formation through covalent SUMOylation.
- The SUMO E3 ligase activity of Pc2 is coordinated through a SUMO interaction motif.
- HSP70-Hrd1 axis precludes the oncorepressor potential of N-terminal misfolded Blimp-1s in lymphoma cells.

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