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Bub1 Rabbit pAb

Catalog # AP100259

Product Information

Application	WB, IHC-P, IHC-F, IF
Primary Accession	O43683
Other Accession	O43683
Reactivity	Mouse
Predicted	Rat, Human, Rabbit, Dog, Horse
Host	Rabbit
Clonality	Polyclonal
Calculated MW	122375
Physical State	Liquid
Immunogen	KLH conjugated synthetic peptide derived from human Bub1
Epitope Specificity	951-1085/1085
Isotype	IgG
Purity	affinity purified by Protein A
Buffer	0.01M TBS (pH7.4) with 1% BSA, 0.02% Proclin300 and 50% Glycerol.
SIMILARITY	Belongs to the protein kinase superfamily. Ser/Thr protein kinase family. BUB1 subfamily.Contains 1 BUB1 N-terminal domain.Contains 1 protein kinase domain.
SUBUNIT	Interacts with BUB3 and CASC5. Interacts (when phosphorylated) with PLK1. The BUB1-BUB3 complex interacts with MAD1L1. Interacts with SV40 Large T antigen; this interaction induces activation of a DNA damage response and promotes p53/TP53 stabilization and phosphorylation (Probable).
Post-translational modifications	Phosphorylated upon DNA damage, probably by ATM or ATR. Upon spindle-assembly checkpoint activation it is hyperphosphorylated and its kinase activity toward CDC20 is stimulated. Phosphorylation at Thr-609 is required for interaction with PLK1, phosphorylation at this site probably creates a binding site for the POLO-box domain of PLK1, thus enhancing the PLK1-BUB1 interaction.Ubiquitinated and degraded during mitotic exit by APC/C-Cdh1.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	Bub1 was initially identified as the mammalian homolog to the yeast protein through a cDNA screen. Bub1 encodes a kinase involved in the formation of the spindle checkpoint, an important mechanism that ensures high fidelity mitotic chromosome segregation. It is thought to be required for assembly of a functional inner centromere, sister chromatid cohesion via targeting of the Shugoshim protein and metaphase congression. Bub1 functions by phosphorylating cdc20, a member of the mitotic checkpoint complex and activating the spindle checkpoint. A related protein kinase Bub3 interacts with Bub1 and targets it to kinetochores prior to chromosome alignment. Mutations in bub1 have been associated with aneuploidy and several forms of cancer.

Additional Information

Gene ID	699
Other Names	BUB1A; BUB1L; MCPH30; hBUB1; D2Xrf87; BUB1_HUMAN; BUB1; 2.7.11.1; BUB1_MOUSE; mBUB1; BUB1 mitotic checkpoint serine/threonine kinase; budding uninhibited by benzimidazoles 1 (yeast homolog); budding uninhibited by benzimidazoles 1 homolog (yeast)
Dilution	WB=1:500-2000,IHC-P=1:100-500,IHC-F=1:100-500,IF=1:100-500
Storage	Store at -20 °C for one year. Avoid repeated freeze/thaw cycles. When reconstituted in sterile pH 7.4 0.01M PBS or diluent of antibody the antibody is stable for at least two weeks at 2-4 °C.

Protein Information

Name	BUB1 (HGNC:1148)
Synonyms	BUB1L
Function	Serine/threonine-protein kinase that performs 2 crucial functions during mitosis: it is essential for spindle-assembly checkpoint signaling and for correct chromosome alignment. Has a key role in the assembly of checkpoint proteins at the kinetochore, being required for the subsequent localization of CENPF, BUB1B, CENPE and MAD2L1. Required for the kinetochore localization of PLK1. Required for centromeric enrichment of AUKRB in prometaphase. Plays an important role in defining SGO1 localization and thereby affects sister chromatid cohesion. Promotes the centromeric localization of TOP2A (PubMed:35044816). Acts as a substrate for anaphase-promoting complex or cyclosome (APC/C) in complex with its activator CDH1 (APC/C-Cdh1). Necessary for ensuring proper chromosome segregation and binding to BUB3 is essential for this function. Can regulate chromosome segregation in a kinetochore-independent manner. Can phosphorylate BUB3. The BUB1-BUB3 complex plays a role in the inhibition of APC/C when spindle-assembly checkpoint is activated and inhibits the ubiquitin ligase activity of APC/C by phosphorylating its activator CDC20. This complex can also phosphorylate MAD1L1. Kinase activity is essential for inhibition of APC/CCDC20 and for chromosome alignment but does not play a major role in the spindle-assembly checkpoint activity. Mediates cell death in response to chromosome missegregation and acts to suppress spontaneous tumorigenesis.
Cellular Location	Nucleus. Chromosome, centromere, kinetochore Note=Nuclear in interphase cells. Accumulates gradually during G1 and S phase of the cell cycle, peaks at G2/M, and drops dramatically after mitosis. Localizes to the outer kinetochore. Kinetochore localization is required for normal mitotic timing and checkpoint response to spindle damage and occurs very early in prophase. AURKB, KNL1 and INCENP are required for kinetochore localization
Tissue Location	High expression in testis and thymus, less in colon, spleen, lung and small intestine. Expressed in fetal thymus, bone marrow, heart, liver, spleen and thymus. Expression is associated with cells/tissues with a high mitotic index

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