HIPK2 Antibody – Rabbit Polyclonal

PRODUCT OVERVIEW

Product Name	HIPK2, Polyclonal Antibody
Full Product Name	HIPK2 Antibody
Product Gene Name	anti-HIPK2 antibody
Product Synonym Names	hHIPk 2; hHIPk2; HIPK 2; Hipk2; HIPK2_HUMAN; Homeodomain interacting protein kinase 2; Homeodomain-interacting protein kinase 2; Nbak1; Nuclear body-associated kinase 1; PRO0593; Sialophorin tail-associated nuclear serine/threonine-protein kinase; Stank
Clonality	Polyclonal
Isotype	Rabbit IgG
Host	Rabbit
Species Reactivity	Human, Mouse, Rat
Form/Format	Liquid. Rabbit IgG in phosphate buffered saline, pH7.4, 150mM NaCl, 0.02% sodium azide and 50% glycerol.
Purity/Purification	The antiserum was purified by peptide affinity chromatography using SulfoLink Coupling Resin
Concentration	1mg/ml (lot specific)
Specificity	HIPK2 Antibody detects endogenous levels of total HIPK2. Tissue Specificity: Highly expressed in heart, muscle and kidney. Weakly expressed in a ubiquitous way. Down-regulated in several thyroid and breast tumors.
Preparation and Storage	Store at -20 degree C. Stable for 12 months from date of receipt.
Antibody/Peptide Pairs	HIPK2 peptide (MBS9617640) is used for blocking the activity of HIPK2 antibody (MBS9613560)
Molecular Weight	128,158 Da
OMIM	606868
3D Structure	ModBase 3D Structure for Q9H2X6
Supply Chain Verification	Manufactured in a lab with traceable raw materials manufactured on site. Coordinated product portfolio of antibodies, pairs, conjugates, recombinant proteins, and immunoassay materials available, please inquire.
Immunogen	A synthesized peptide derived from human HIPK2.
Conjugation	Unconjugated
Fragment	Fab fragment
Post Translational Modifications	Autophosphorylation at Tyr-361 in the activation loop activates the kinase and promotes nuclear localization. Sumoylated. When conjugated it is directed to nuclear speckles. Desumoylated by SENP1 (By similarity). Sumoylation on Lys-32 is promoted by the E3 SUMO-protein ligase CBX4.Ubiquitinated by FBXO3, WSB1 and SIAH1, leading to rapid proteasome-dependent degradation. The degradation mediated by FBXO3, but not ubiquitination, is prevented in the presence of PML. The degradation mediated by WSB1 and SIAH1 is reversibly reduced upon DNA damage.Cleaved at Asp-923 and Asp-984 by CASP6 in a p53/TP53-dependent manner. The cleaved form lacks the autoinhibitory C-terminal domain (AID), resulting in a hyperactive kinase, which potentiates p53/TP53 Ser-46 phosphorylation and subsequent activation of the cell death machinery.

Subunit Structure	Interacts with CREB1, SIAH1, WSB1, CBX4, TRADD, p53/TP53, TP73, TP63, CREBBP, DAXX, P53DINP1, SKI, SMAD1, SMAD2 and SMAD3, but not SMAD4. Interacts with ATF1, PML, RUNX1, EP300, NKX1-2, NKX2-5, SPN/CD43, UBE2I, HMGA1, CTBP1, AXIN1, NLK, MYB, POU4F1, POU4F2, POU4F3, UBE2I, UBL1 and ZBTB4. Probably part of a complex consisting of p53/TP53, HIPK2 and AXIN1. Interacts with SP100; positively regulates TP53-dependent transcription. Interacts with SUMO1P1/SUMO5.
Similarity	Belongs to the protein kinase superfamily. CMGC Ser/Thr protein kinase family. HIPK subfamily.
Subcellular Location	Nucleus>PML body. Cytoplasm. Note: Concentrated in PML/POD/ND10 nuclear bodies. Small amounts are cytoplasmic.
ISO Certification	Manufactured in an ISO 9001:2015 Certified Laboratory.
Applications Tested/Suitable for anti-HIPK2 antibody	Peptide ELISA (EIA)
Application Notes for anti-HIPK2 antibody	Peptide ELISA: 1:20,000-1:40,000
Related Product Information for anti-HIPK2 antibody	Serine/threonine-protein kinase involved in transcription regulation, p53/TP53-mediated cellular apoptosis and regulation of the cell cycle. Acts as a corepressor of several transcription factors, including SMAD1 and POU4F1/Brn3a and probably NK homeodomain transcription factors. Phosphorylates PDX1, ATF1, PML, p53/TP53, CREB1, CTBP1, CBX4, RUNX1, EP300, CTNNB1, HMGA1 and ZBTB4. Inhibits cell growth and promotes apoptosis through the activation of p53/TP53 both at the transcription level and at the protein level (by phosphorylation and indirect acetylation). The phosphorylation of p53/TP53 may be mediated by a p53/TP53-HIPK2-AXIN1 complex. Involved in the response to hypoxia by acting as a transcriptional co-suppressor of HIF1A. Mediates transcriptional activation of TP73. In response to TGFB, cooperates with DAXX to activate JNK. Negative regulator through phosphorylation and subsequent proteasomal degradation of CTNNB1 and the antiapoptotic factor CTBP1. In the Wnt/beta-catenin signaling pathway acts as an intermediate kinase between MAP3K7/TAK1 and NLK to promote the proteasomal degradation of MYB. Phosphorylates CBX4 upon DNA damage and promotes its E3 SUMO-protein ligase activity. Activates CREB1 and ATF1 transcription factors by phosphorylation in response to genotoxic stress. In response to DNA damage, stabilizes PML by phosphorylation. PML, HIPK2 and FBXO3 may act synergically to activate p53/TP53-dependent transactivation. Promotes angiogenesis, and is involved in erythroid differentiation, especially during fetal liver erythropoiesis. Phosphorylation of RUNX1 and EP300 stimulates EP300 transcription regulation activity. Triggers ZBTB4 protein degradation in response to DNA damage. Modulates HMGA1 DNA-binding affinity. In response to high glucose, triggers phosphorylation-mediated subnuclear localization shifting of PDX1. Involved in the regulation of eye size, lens formation and retinal lamination during late embryogenesis.
Other Notes	Small volumes of anti-HIPK2 antibody vial(s) may occasionally become entrapped in the seal of the product vial during shipment and storage. If necessary, briefly centrifuge the vial on a tabletop centrifuge to dislodge any liquid in the container`s cap. Certain products may require to ship with dry ice and additional dry ice fee may apply.
Searchable Terms for HIPK2 purchase	MBS9613560 is an antibody targeting HIPK2. Also known as HIPK2 Antibody. Reactive in Human, Mouse, Rat. Host: Rabbit.

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for HIPK2. It may not necessarily be applicable to this product.

NCBI GI #	164420685
NCBI GeneID	28996
NCBI Accession #	NP_073577.3
UniProt Primary Accession #	Q9H2X6
UniProt Secondary Accession #	Q75MR7; Q8WWI4; Q9H2Y1
UniProt Related Accession #	Q9H2X6
GenBank Nucleotide #	NM_022740.4
NCBI Official Full Name	homeodomain-interacting protein kinase 2 isoform 1
NCBI Official Synonym Full Names	homeodomain interacting protein kinase 2

NCBI Official Symbol	HIPK2
NCBI Official Synonym Symbols	PRO0593
UniProt Protein Name	Homeodomain-interacting protein kinase 2
Protein Family	Homeodomain-interacting protein kinase
UniProt Gene Name	HIPK2
UniProt Synonym Gene Names	hHIPk2
UniProt Entry Name	HIPK2_HUMAN
NCBI Protein Information	homeodomain-interacting protein kinase 2; hHIPk2
NCBI Summary for HIPK2	This gene encodes a conserved serine/threonine kinase that is a member of the homeodomain-interacting protein kinase family. The encoded protein interacts with homeodomain transcription factors and many other transcription factors such as p53, and can function as both a corepressor and a coactivator depending on the transcription factor and its subcellular localization. Multiple transcript variants encoding different isoforms have been found for this gene. [provided by RefSeq, Nov 2011]
UniProt Comments for HIPK2	HIPK2: homeodomain interacting protein kinase 2 is a CMGC kinase of the DYRK family. Interacts with TRADD. Acts as a corepressor of several transcription factors, including SMAD1 and POU4F1/Brn3a and probably NK homeodomain transcription factors. Inhibits cell growth and promotes apoptosis. Involved in transcriptional activation of TP53 and TP73. In response to TGFB, cooperates with DAXX to activate JNK. Phosphorylates the antiapoptotic factor CTBP1 and promotes its proteasomal degradation. In the Wnt/beta-catenin signaling pathway acts as an intermediate kinase between TAK1 and NLK to promote the proteasomal degradation of MYB. Highly expressed in neuronal tissues, heart and kidney. Weakly expressed ubiquitously. Possible tumor suppressor. Activates p53 in response to UV light, causing growth arrest and apoptosis. Required for cisplatin-induced apoptosis. Downregulated in breast and thyroid carcinomas. Three alternatively spliced isoforms have been described. Protein type: Protein kinase, CMGC; EC 2.7.11.1; Kinase, protein; Protein kinase, Ser/Thr (non-receptor); CMGC group; DYRK family; HIPK subfamily Chromosomal Location of Human Ortholog: 7q34 Cellular Component: nuclear body; PML body; cytoplasm; nucleus Molecular Function: protein serine/threonine kinase activity; protein binding; virion binding; SMAD binding; transcription corepressor activity; ATP binding; protein kinase activity Biological Process: voluntary musculoskeletal movement; positive regulation of protein binding; regulation of cell cycle; positive regulation of transcription, DNA-dependent; positive regulation of JNK cascade; PML body organization and biogenesis; negative regulation of transcription from RNA polymerase II promoter; protein amino acid phosphorylation; adult walking behavior; negative regulation of BMP signaling pathway; neuron differentiation; anterior/posterior pattern formation; DNA damage response, signal transduction by p53 class mediator resulting in transcription of p21 class mediator; transforming growth factor beta receptor signaling pathway; positive regulation of cell proliferation; erythrocyte differentiation; negative regulation of neuron apoptosis; DNA damage response, signal transduction by p53 class mediator resulting in induction of apoptosis; positive regulation of DNA binding; smoothened signaling pathway; transcription, DNA-dependent; positive regulation of transforming growth factor beta receptor signaling pathway; peptidyl-threonine phosphorylation; peptidyl-serine phosphorylation; positive regulation of angiogenesis; eye development; virus-host interaction; embryonic retina morphogenesis in camera-type eye; positive regulation of transcription from RNA polymerase II promoter; positive regulation of transcription factor activity; embryonic camera-type eye morphogenesis; positive regulation of protein amino acid phosphorylation
Research Articles on HIPK2	**1.** In response to severe DNA damage, p53 phosphorylation at Ser46 is promoted by the accumulation of HIPK2 due to downregulation of nuclear Mdm2 in the later phase of the response.
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