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phospho-Aurora A (Thr288) Rabbit pAb

Catalog # AP97109

Product Information

Application	WB, IHC-P, IHC-F, IF, E
Primary Accession	O14965
Other Accession	O14965
Reactivity	Human
Predicted	Rat, Pig, Mouse, Rabbit, Dog, Horse, Sheep
Host	Rabbit
Clonality	Polyclonal
Calculated MW	45823
Physical State	Liquid
Immunogen	KLH conjugated Synthesised phosphopeptide derived from human Aurora A around the phosphorylation site of Thr288
Epitope Specificity	RT(p-T)LC
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. Aurora subfamily. Contains 1 protein kinase domain.
SUBUNIT	Interacts with FBXL7 (By similarity). Interacts with CPEB1, JTB, TACC1, TPX2, PPP2CA, as well as with the protein phosphatase type 1 (PP1) isoforms PPP1CA, PPP1CB and PPP1CC. Interacts also with its substrates ARHGEF2, BORA, BRCA1, KIF2A, PARD3, and p53/TP53. Interaction with BORA promotes phosphorylation of PLK1. Interacts with PIFO. Interacts with GADD45A, competing with its oligomerization. Interacts (via C-terminus) with AUNIP (via C-terminus). Identified in a complex with AUNIP and NIN. Interacts with FRY; this interaction facilitates AURKA-mediated PLK1 phosphorylation.
Post-translational modifications	Activated by phosphorylation at Thr-288; this brings about a change in the conformation of the activation segment. Phosphorylation at Thr-288 varies during the cell cycle and is highest during M phase. Autophosphorylated at Thr-288 upon TPX2 binding. Thr-288 can be phosphorylated by several kinases, including PAK and PKA. Protein phosphatase type 1 (PP1) binds AURKA and inhibits its activity by dephosphorylating Thr-288 during mitosis. Phosphorylation at Ser-342 decreases the kinase activity. PPP2CA controls degradation by dephosphorylating Ser-51 at the end of mitosis. Ubiquitinated by the E3 ubiquitin-protein ligase complex SCF(FBXL7) during mitosis, leading to its degradation by the proteasome. Ubiquitinated by CHFR, leading to its degradation by the proteasome (By similarity). Ubiquitinated by the anaphase-promoting complex (APC), leading to its degradation by the proteasome.
Important Note	This product as supplied is intended for research use only, not for use in human, therapeutic or diagnostic applications.
Background Descriptions	Aurora A plays a role in cell cycle regulation during anaphase and/or telophase, in relation to the function of the centrosome/spindle pole region during chromosome segregation. Aurora A plays a key role during tumor development and progression and is overexpressed in many human cancers including breast, ovarian and colorectal. Aurora A is viewed as a potential

target for anticancer drug treatment. Aurora B is a mitotic protein kinase that phosphorylates histone H3 (probably on Serine 10), behaves as a chromosomal passenger protein, and may regulate several stages of mitosis such as centrosome separation, chromosome segregation and cytokinesis. It localizes to the inner centromere region from prophase to anaphase. The Aurora kinases, members of the Ser/Thr protein kinase family, associate with microtubules during chromosome movement and segregation. Aurora kinase C may play a part in organizing microtubules in relation to the function of the centrosome/spindle pole during mitosis. This protein is localized to centrosome from anaphase to cytokinesis. Expression is limited to testis in normal cells. Elevated expression levels are seen only in a subset of cancer cells such as HepG2, HuH7 and HeLa cells. Aurora-C expression is maximum at M phase.

Additional Information

Gene ID	6790
Other Names	AIK; ARK1; AURA; BTAK; PPP1R47; STK15; STK6; STK7; AIRK1; ARK-1; Aurora-A; Ayk1; IAK; IAK1; AURKA_HUMAN; AURKA; Aurora 2; Aurora/IPL1-related kinase 1 (ARK-1 | Aurora-related kinase 1); Breast tumor-amplified kinase; Ipl1- and aurora-related kinase 1; Serine/threonine-protein kinase 15; Serine/threonine-protein kinase 6; Serine/threonine-protein kinase Ayk1; Serine/threonine-protein kinase aurora-A; 2.7.11.1; AURKA_MOUSE; aurora kinase A; serine/threonine kinase 15; serine/threonine kinase 6; protein phosphatase 1, regulatory subunit 47; Aurora-A kinase; AURKA | Aurora A (phospho-T288); p-Aurora A; phospho-Aurora A; p-AURKA; AURKA | Aurora A (phospho-Thr288)
Dilution	WB=1:500-2000,IHC-P=1:100-500,IHC-F=1:100-500,IF=1:100-500,ELISA=1:5000-10000
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	AURKA (HGNC:11393)
Function	Mitotic serine/threonine kinase that contributes to the regulation of cell cycle progression (PubMed:11039908, PubMed:12390251, PubMed:17125279, PubMed:17360485, PubMed:18615013, PubMed:26246606). Associates with the centrosome and the spindle microtubules during mitosis and plays a critical role in various mitotic events including the establishment of mitotic spindle, centrosome duplication, centrosome separation as well as maturation, chromosomal alignment, spindle assembly checkpoint, and cytokinesis (PubMed:14523000, PubMed:26246606). Required for normal spindle positioning during mitosis and for the localization of NUMA1 and DCTN1 to the cell cortex during metaphase (PubMed:27335426). Required for initial activation of CDK1 at centrosomes (PubMed:13678582, PubMed:15128871). Phosphorylates numerous target proteins, including ARHGEF2, BORA, BRCA1, CDC25B, DLGP5, HDAC6, KIF2A, LATS2, NDEL1, PARD3, PPP1R2, PLK1, RASSF1, TACC3, p53/TP53 and TPX2 (PubMed:11551964, PubMed:14702041, PubMed:15128871, PubMed:15147269, PubMed:15987997, PubMed:17604723,

PubMed:18056443, PubMed:18615013). Phosphorylates MCRS1 which is required for MCRS1- mediated kinetochore fiber assembly and mitotic progression (PubMed:27192185). Regulates KIF2A tubulin depolymerase activity (PubMed:19351716). Important for microtubule formation and/or stabilization (PubMed:18056443). Required for normal axon formation (PubMed:19812038). Plays a role in microtubule remodeling during neurite extension (PubMed:19668197). Also acts as a key regulatory component of the p53/TP53 pathway, and particularly the checkpoint- response pathways critical for oncogenic transformation of cells, by phosphorylating and destabilizing p53/TP53 (PubMed:14702041). Phosphorylates its own inhibitors, the protein phosphatase type 1 (PP1) isoforms, to inhibit their activity (PubMed:11551964). Inhibits cilia outgrowth (By similarity). Required for cilia disassembly via phosphorylation of HDAC6 and subsequent deacetylation of alpha-tubulin (PubMed:17604723, PubMed:20643351). Regulates protein levels of the anti-apoptosis protein BIRC5 by suppressing the expression of the SCF(FBXL7) E3 ubiquitin-protein ligase substrate adapter FBXL7 through the phosphorylation of the transcription factor FOXP1 (PubMed:28218735).

Cellular Location

Cytoplasm, cytoskeleton, microtubule organizing center, centrosome. Cytoplasm, cytoskeleton, spindle pole. Cytoplasm, cytoskeleton, microtubule organizing center, centrosome, centriole {ECO:0000250|UniProtKB:P97477}. Cell projection, neuron projection {ECO:0000250|UniProtKB:P97477}. Cell projection, cilium. Cytoplasm, cytoskeleton, cilium basal body. Basolateral cell membrane {ECO:0000250|UniProtKB:F1PNY0}. Note=Detected at the neurite hillock in developing neurons (By similarity). Localizes at the centrosome in mitotic cells from early prophase until telophase, but also localizes to the spindle pole MTs from prophase to anaphase (PubMed:17229885, PubMed:21225229, PubMed:9606188). Colocalized with SIRT2 at centrosome (PubMed:22014574). Moves to the midbody during both telophase and cytokinesis (PubMed:17726514). Associates with both the pericentriolar material (PCM) and centrioles (PubMed:22014574). The localization to the spindle poles is regulated by AAAS (PubMed:26246606) {ECO:0000250|UniProtKB:P97477, ECO:0000269|PubMed:17229885, ECO:0000269|PubMed:17726514, ECO:0000269|PubMed:21225229, ECO:0000269|PubMed:22014574, ECO:0000269|PubMed:26246606, ECO:0000269|PubMed:9606188}

Tissue Location

Highly expressed in testis and weakly in skeletal muscle, thymus and spleen. Also highly expressed in colon, ovarian, prostate, neuroblastoma, breast and cervical cancer cell lines

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.