10320 Camino Santa Fe, Suite G
San Diego, CA 92121
Tel: 858.875.1900 Fax: 858.875.1999

VRK1 Antibody (Center)

Purified Rabbit Polyclonal Antibody (Pab)
Catalog # AP7408c

Product Information

Application	WB, E
Primary Accession	Q99986
Reactivity	Human
Host	Rabbit
Clonality	Polyclonal
Isotype	Rabbit IgG
Clone Names	RB2997
Calculated MW	45476
Antigen Region	366-396

Additional Information

Gene ID	7443
Other Names	Serine/threonine-protein kinase VRK1, Vaccinia-related kinase 1, VRK1
Target/Specificity	This VRK1 antibody is generated from rabbits immunized with a KLH conjugated synthetic peptide between 366-396 amino acids from the Central region of human VRK1.
Dilution	WB~~1:1000 E~~Use at an assay dependent concentration.
Format	Purified polyclonal antibody supplied in PBS with 0.09% (W/V) sodium azide. This antibody is prepared by Saturated Ammonium Sulfate (SAS) precipitation followed by dialysis against PBS.
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	VRK1 Antibody (Center) is for research use only and not for use in diagnostic or therapeutic procedures.

Protein Information

Name	VRK1 {ECO:0000303|PubMed:9344656, ECO:0000312|HGNC:HGNC:12718}
Function	Serine/threonine kinase involved in the regulation of key cellular processes including the cell cycle, nuclear condensation, transcription regulation, and DNA damage response (PubMed:14645249, PubMed:18617507, PubMed:19103756, PubMed:33076429). Controls chromatin organization and remodeling by mediating phosphorylation of histone H3 on 'Thr-4' and

	histone H2AX (H2aXT4ph) (PubMed:31527692, PubMed:37179361). It also phosphorylates KAT5 in response to DNA damage, promoting KAT5 association with chromatin and histone acetyltransferase activity (PubMed:33076429). Is involved in the regulation of cell cycle progression of neural progenitors, and is required for proper cortical neuronal migration (By similarity). Is involved in neurite elongation and branching in motor neurons, and has an essential role in Cajal bodies assembly, acting through COIL phosphorylation and the control of coilin degradation (PubMed:21920476, PubMed:31090908, PubMed:31527692). Involved in Golgi disassembly during the cell cycle: following phosphorylation by PLK3 during mitosis, it is required to induce Golgi fragmentation (PubMed:19103756). Phosphorylates BANF1: disrupts its ability to bind DNA, reduces its binding to LEM domain-containing proteins and causes its relocalization from the nucleus to the cytoplasm (PubMed:16495336). Phosphorylates TP53BP1 and p53/TP53 on 'Thr-18', preventing the interaction between p53/TP53 and MDM2 (PubMed:10951572, PubMed:31527692). Phosphorylates ATF2 which activates its transcriptional activity (PubMed:15105425). Phosphorylates JUN (PubMed:31527692).
Cellular Location	Nucleus. Cytoplasm. Nucleus, Cajal body. Note=Enriched on chromatin during mitosis.
Tissue Location	Widely expressed. Highly expressed in fetal liver, testis and thymus.

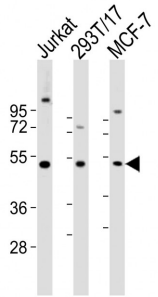
Background

This gene encodes a member of the vaccinia-related kinase (VRK) family of serine/threonine protein kinases. This gene is widely expressed in human tissues and has increased expression in actively dividing cells, such as those in testis, thymus, fetal liver, and carcinomas. Its protein localizes to the nucleus and has been shown to promote the stability and nuclear accumulation of a transcriptionally active p53 molecule and, in vitro, to phosphorylate Thr18 of p53 and reduce p53 ubiquitination. This gene, therefore, may regulate cell proliferation. This protein also phosphorylates histone, casein, and the transcription factors ATF2 (activating transcription factor 2) and c-JUN.

References

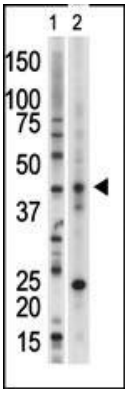
Nezu, J., et al., Genomics 45(2):327-331 (1997).

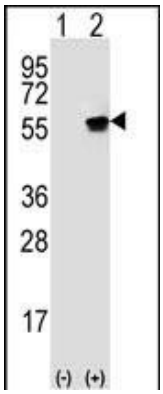
Images



All lanes : Anti-VRK1(E381) antibody at 1:2000 dilution Lane 1: Jurkat whole cell lysates Lane 2: 293T/17 whole cell lysates Lane 3: MCF-7 whole cell lysates Lysates/proteins at 20 µg per lane. Secondary Goat Anti-Rabbit IgG, (H+L), Peroxidase conjugated at 1/10000 dilution Predicted band size : 45 kDa Blocking/Dilution buffer: 5% NFDM/TBST.

The anti-VRK1 Pab (Cat. #AP7408c) is used in Western blot to detect VRK1 in mouse lung tissue lysate (Lane 1) and HL-60 cell lysate (Lane 2).





Western blot analysis of VRK1 (arrow) using rabbit polyclonal VRK1 Antibody (E381) (Cat. #AP7408c). 293 cell lysates (2 ug/lane) either nontransfected (Lane 1) or transiently transfected (Lane 2) with the VRK1 gene.