VRK1 siRNA – Serine/Threonine-Protein Kinase VRK1 (Human)

PRODUCT OVERVIEW

Product Name	VRK1, siRNA
Full Product Name	VRK1 siRNA (Human)
Product Gene Name	VRK1 sirna
Product Synonym Names	Serine/threonine-protein kinase VRK1; Vaccinia-related kinase 1
Host	Synthetic
Species Reactivity	Human
Form/Format	Lyophilized powder
Purity/Purification	> 97%
Specificity	VRK1 siRNA (Human) is a target-specific 19-23 nt siRNA oligo duplexes designed to knock down gene expression.
Preparation and Storage	Shipped at 4 degree C. Store at -20 degree C for one year.
Molecular Weight	45,476 Da
OMIM	602168
3D Structure	ModBase 3D Structure for Q99986
Negative Control	siRNA Negative Control (Catalog# MBS8241404) is a non-targeting 21 nt siRNA recommended as a negative control for experiments using targeted siRNA transfection.
Quality Control	Oligonucleotide synthesis is monitored base by base through trityl analysis to ensure appropriate coupling efficiency. The oligo is subsequently purified by affinity-solid phase extraction. The annealed RNA duplex is further analyzed by mass spectrometry to verify the exact composition of the duplex. Each lot is compared to the previous lot by mass spectrometry to ensure maximum lot-to-lot consistency.
Directions for Use	We recommends transfection with 100 nM siRNA 48 to 72 hours prior to cell lysis. Before resuspending, briefly centrifuge the tube to ensure the lyophilized siRNA is at the bottom of the tube. Resuspend the siRNA oligos to an appropriate concentration with DEPC water. For each vial, suitable for 250 transfections in 24 well plate (20 pmol for each well).
Components	We offer pre-designed sets of 3 different target-specific siRNA oligo duplexes of human VRK1 gene. Each vial contains 5 nmol of lyophilized siRNA. The duplexes can be transfected individually or pooled together to achieve knockdown of the target gene, which is most commonly assessed by qPCR or western blot. Our siRNA oligos are also chemically modified (2'-OMe) at no extra charge for increased stability and enhanced knockdown in vitro and in vivo.
Applications Tested/Suitable for VRK1 sirna	RNA Interference (RNAi)
Related Product Information for VRK1 sirna	MBS8219323 is an siRNA targeting VRK1. Also known as VRK1 siRNA (Human). Reactive in Human. Host: Synthetic. siRNA to inhibit VRK1 expression using RNA interference
Other Notes	Small volumes of VRK1 sirna 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.

ADDITIONAL DETAILS

NCBI/Uniprot data below describe general gene information for VRK1. It may not necessarily be applicable to this product.

NCBI GI #	4507903
NCBI GeneID	7443
NCBI Accession #	NP_003375.1
UniProt Primary Accession #	Q99986
UniProt Secondary Accession #	Q3SYL2
UniProt Related Accession #	Q99986
GenBank Nucleotide #	NM_003384.2
NCBI Official Full Name	serine/threonine-protein kinase VRK1
NCBI Official Synonym Full Names	vaccinia related kinase 1
NCBI Official Symbol	VRK1
NCBI Official Synonym Symbols	PCH1; PCH1A
UniProt Protein Name	Serine/threonine-protein kinase VRK1
UniProt Synonym Protein Names	Vaccinia-related kinase 1
Protein Family	Serine/threonine-protein kinase
UniProt Gene Name	VRK1
UniProt Entry Name	VRK1_HUMAN
NCBI Protein Information	serine/threonine-protein kinase VRK1
NCBI Summary for VRK1	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. [provided by RefSeq, Jul 2008]
UniProt Comments for VRK1	VRK1: Serine/threonine kinase that phosphorylates Thr-18 of p53/TP53 and may thereby prevent the interaction between p53/TP53 and MDM2. Defects in VRK1 are the cause of pontocerebellar hypoplasia type 1 (PCH1); also called pontocerebellar hypoplasia with infantile spinal muscular atrophy or pontocerebellar hypoplasia with anterior horn cell disease. PCH1 is characterized by an abnormally small cerebellum and brainstem, central and peripheral motor dysfunction from birth, gliosis and anterior horn cell degeneration resembling infantile spinal muscular atrophy (SMA). Belongs to the protein kinase superfamily. CK1 Ser/Thr protein kinase family. VRK subfamily. Protein type: EC 2.7.11.1; Protein kinase, Ser/Thr (non-receptor); Kinase, protein; Protein kinase, CK1; CK1 group; VRK family Chromosomal Location of Human Ortholog: 14q32 Cellular Component: nucleoplasm; Golgi stack; cytoplasm; nucleolus; spindle; cytosol; nucleus Molecular Function: histone serine kinase activity (H3-S10 specific); protein serine/threonine kinase activity; protein binding; nucleosomal histone binding; ATP binding; protein kinase activity Biological Process: regulation of cell shape; mitosis; mitotic nuclear envelope reassembly; Wnt receptor signaling pathway; cell division; protein amino acid autophosphorylation; mitotic nuclear envelope disassembly; endocytosis; mitotic cell cycle; protein amino acid phosphorylation Disease: Pontocerebellar Hypoplasia, Type 1a
Research Articles on VRK1	**1.** VRK1 deficiency in human and mouse leads to downregulation of amyloid-beta precursor protein (APP). APP overexpression rescues the phenotype caused by Vrk1 knockdown, suggesting that VRK1 affects neuronal migration through an APP-dependent mechanism.

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