

VRK3 (G-14): sc-131086

BACKGROUND

The vaccinia-related kinase (VRK) proteins consist of three Ser-Thr kinases, designated VRK1, VRK2 and VRK3. In the human kinome, VRK proteins function as upstream regulators of several transcription factors. VRK3 (vaccinia related kinase 3) is a 474 amino acid nuclear protein that contains one protein kinase domain and belongs to the serine/threonine protein kinase family. Widely expressed in human tissues, VRK3 is thought to regulate ERK (extracellular signal regulated kinases) activity by directly binding to MPKs (mitogen-activated protein kinase phosphatases), specifically vaccinia H1-related (VHR) phosphatase, thereby dephosphorylating and inactivating ERK in the nucleus. VRK3 exists as two alternatively spliced variants and is encoded by a gene located on human chromosome 19, which consists of around 63 million bases, over 1,400 genes and makes up over 2% of human genomic DNA.

REFERENCES

1. Nezu, J., et al. 1997. Identification of two novel human putative serine/threonine kinases, VRK1 and VRK2, with structural similarity to vaccinia virus B1R kinase. *Genomics* 45: 327-331.
2. Vega, F.M., et al. 2003. Expression of the VRK (vaccinia-related kinase) gene family of p53 regulators in murine hematopoietic development. *FEBS Lett.* 544: 176-180.
3. Nichols, R.J., et al. 2004. Characterization of three paralogous members of the mammalian vaccinia related kinase family. *J. Biol. Chem.* 279: 7934-7946.
4. Blanco, S., et al. 2006. The subcellular localization of vaccinia-related kinase-2 (VRK2) isoforms determines their different effect on p53 stability in tumour cell lines. *FEBS J.* 273: 2487-2504.
5. Nichols, R.J., et al. 2006. The vaccinia-related kinases phosphorylate the N' terminus of BAF, regulating its interaction with DNA and its retention in the nucleus. *Mol. Biol. Cell* 17: 2451-2464.
6. Kang, T.H., et al. 2006. Negative regulation of ERK activity by VRK3-mediated activation of VHR phosphatase. *Nat. Cell Biol.* 8: 863-869.
7. Kang, T.H., et al. 2008. VRK3-mediated inactivation of ERK signaling in adult and embryonic rodent tissues. *Biochim. Biophys. Acta* 1783: 49-58.
8. Gozdz, A., et al. 2008. Cisplatin-mediated activation of extracellular signal-regulated kinases 1/2 (ERK1/2) by inhibition of ERK1/2 phosphatases. *J. Neurochem.* 106: 2056-2067.

CHROMOSOMAL LOCATION

Genetic locus: VRK3 (human) mapping to 19q13.33; Vrk3 (mouse) mapping to 7 B4.

SOURCE

VRK3 (G-14) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of VRK3 of human origin.

STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-131086 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

VRK3 (G-14) is recommended for detection of All VRK3 isoforms 1 and 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000); non cross-reactive with other VRK family members .

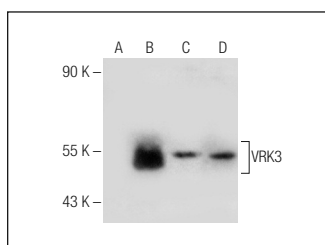
VRK3 (G-14) is also recommended for detection of All VRK3 isoforms 1 and 2 in additional species, including canine and porcine.

Suitable for use as control antibody for VRK3 siRNA (h): sc-97404, VRK3 siRNA (m): sc-155229, VRK3 shRNA Plasmid (h): sc-97404-SH, VRK3 shRNA Plasmid (m): sc-155229-SH, VRK3 shRNA (h) Lentiviral Particles: sc-97404-V and VRK3 shRNA (m) Lentiviral Particles: sc-155229-V.

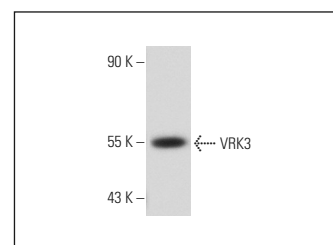
Molecular Weight of VRK3: 53 kDa.

Positive Controls: VRK3 (m4): 293T Lysate: sc-127777, Caki-1 cell lysate: sc-2224 or SK-BR-3 cell lysate: sc-2218.

DATA



VRK3 (G-14): sc-131086. Western blot analysis of VRK3 expression in non-transfected 293T: sc-117752 (A), mouse VRK3 transfected 293T: sc-127777 (B), Caki-1 (C) and HL-60 (D) whole cell lysates.



VRK3 (G-14): sc-131086. Western blot analysis of VRK3 expression in SK-BR-3 nuclear extract.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

MONOS
Satisfaction
Guaranteed

Try **VRK3 (C-8): sc-398771**, our highly recommended monoclonal alternative to VRK3 (G-14).ww