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Product Information

Anti-VRK1
produced in rabbit, affinity isolated antibody

Product Number **V1765**

Product Description

Anti-VRK1 is produced in rabbit using as the immunogen a synthetic peptide corresponding to a fragment of human VRK1 (GeneID: 7443), conjugated to KLH. The corresponding sequence is identical in mouse and rat VRK1. The antibody is affinity-purified using the immunizing peptide immobilized on agarose.

Anti-VRK1 specifically recognizes human VRK1. The antibody may be used in various immunochemical techniques including immunoblotting (~45 kDa). Detection of the VRK1 band by immunoblotting is specifically inhibited by the VRK1 immunizing peptide.

The vaccinia related kinases (VRKs) comprise a new family of ubiquitously expressed Ser/Thr protein kinases with homology to the vaccinia virus B kinase.[1,2] The VRK orthologues encoded by *C. elegans* and *Drosophila melanogaster* play an essential role in cell division. Mammalian genome encodes three VRK proteins, VRK1-3, that differ in their subcellular distribution and enzymatic activity.[2] VRK1 has been reported to be localized to the nucleus and is enzymatically active. VRK1 is able to phosphorylate and regulate the activity of transcription factors implicated in stress-related cellular responses, including c-Jun, ATF2, and the BAF protein required for nuclear envelope assembly.[3-6] Human VRK1 has been shown to phosphorylate p53 at Thr^{18} resulting in its stabilization by preventing the p53-Hdm2 interaction, and activation of p53-dependent gene transcription.[3] In turn, the stable accumulation of p53 induces a proteolytic degradation of VRK1 by an autoregulatory mechanism, via the endosome-lysosome pathway. PI3K interacts and phosphorylates VRK1 in a signaling pathway that induces Golgi fragmentation.[7] Inactivation of VRK1 causes a block in cell cycle progression, consistent with its role in highly proliferating cells, during development.[8]

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide as a preservative.

Antibody concentration: ~1.5 mg/mL

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For continuous use, store at 2–8 °C for up to one month. For extended storage, freeze in working aliquots at –20 °C. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilutions should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working antibody concentration of 2.0-4.0 μg/mL is recommended using a HEK-293T cell lysate expressing human VRK1.

Note: In order to obtain best results in various techniques and preparations, it is recommended to determine optimal working dilutions by titration.

References

1. Nezu, J. et al., *Genomics,* **45**, 327-331 (1997).
2. Nichols, R.J., and Traktman, P., *J. Biol. Chem.*, **279**, 7934-7946 (2004).
3. Vega, F.M. et al., *Mol. Cell. Biol.*, **24**, 10366-10380 (2004).
4. Sevilla, A. et al., *J. Biol. Chem.*, **279**, 27458-27465 (2004).
5. Sevilla, A. et al., *Oncogene*, **23**, 8950-8958 (2004).
6. Nichols, R.J. et al., *Mol. Biol. Cell*, **17**, 2451-2464 (2006).
7. Lopez-Sanchez, I. et al., *Mol. Cell. Biol.*, **29**, 1189-1201 (2009).
8. Valbuena, A. et al., *PLoS One*, **3**, e1642 (2008).

VS,ER,TD,KAA,PHC,MAM 04/19-1