SANTA CRUZ BIOTECHNOLOGY, INC.

VRK2 (Y-13): sc-109151

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The Power to Question

BACKGROUND

VRK2 (vaccinia related kinase 2) is a 508 amino acid single-pass type IV membrane protein that contains one protein kinase domain and belongs to the serine/threonine protein kinase family. Widely expressed with highest expression in heart, skeletal muscle, pancreas, testis and fetal liver, VRK2 is thought to function as a serine/threonine kinase that catalyzes the ATP-dependent phosphorylation of target proteins, such as casein and p53, thereby regulating their function within the cell. VRK2 is localized to the endoplasmic reticulum (ER) and, via its ability to regulate protein activity, is thought to be involved in normal cell proliferation events. Expression of VRK2 is upregulated in certain carcinomas, suggesting a possible role for VRK2 in carcinogenesis. Five isoforms of VRK2 exist due to alternative splicing events.

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. Li, L.Y., et al. 2006. Human cellular protein VRK2 interacts specifically with Epstein-Barr virus BHRF1, a homologue of Bcl-2, and enhances cell survival. J. Gen. Virol. 87: 2869-2878.
6. 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.
7. Blanco, S., et al. 2007. Vaccinia-related kinase 2 modulates the stress response to hypoxia mediated by TAK1. Mol. Cell. Biol. 27: 7273-7283.
8. Blanco, S., et al. 2008. Modulation of interleukin-1 transcriptional response by the interaction between VRK2 and the JIP1 scaffold protein. PLoS ONE 3: e1660.

CHROMOSOMAL LOCATION

Genetic locus: VRK2 (human) mapping to 2p16.1; Vrk2 (mouse) mapping to 11 A3.3.

SOURCE

VRK2 (Y-13) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of VRK2 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-109151 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

VRK2 (Y-13) is recommended for detection of VRK2 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

VRK2 (Y-13) is also recommended for detection of VRK2 in additional species, including equine, bovine and porcine.

Suitable for use as control antibody for VRK2 siRNA (h): sc-94622, VRK2 siRNA (m): sc-155228, VRK2 shRNA Plasmid (h): sc-94622-SH, VRK2 shRNA Plasmid (m): sc-155228-SH, VRK2 shRNA (h) Lentiviral Particles: sc-94622-V and VRK2 shRNA (m) Lentiviral Particles: sc-155228-V.

Molecular Weight of VRK2: 58 kDa.

Positive Controls: K-562 whole cell lysate: sc-2203 or HeLa nuclear extract: sc-2120.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.