SANTA CRUZ BIOTECHNOLOGY, INC.

VRK2 (H-5): sc-365199

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.

CHROMOSOMAL LOCATION

Genetic locus: VRK2 (human) mapping to 2p16.1.

SOURCE

VRK2 (H-5) is a mouse monoclonal antibody raised against amino acids 254-496 mapping at the C-terminus of VRK2 of human origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

VRK2 (H-5) is available conjugated to agarose (sc-365199 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365199 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365199 PE), fluorescein (sc-365199 FITC), Alexa Fluor® 488 (sc-365199 AF488), Alexa Fluor® 546 (sc-365199 AF546), Alexa Fluor® 594 (sc-365199 AF594) or Alexa Fluor® 647 (sc-365199 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-365199 AF680) or Alexa Fluor® 790 (sc-365199 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

RESEARCH USE

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

APPLICATIONS

VRK2 (H-5) is recommended for detection of VRK2 of human origin by Western Blotting (starting dilution 1:100, 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).

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

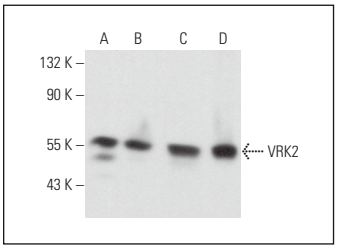
Molecular Weight of VRK2: 58 kDa.

Positive Controls: HeLa nuclear extract: sc-2120.

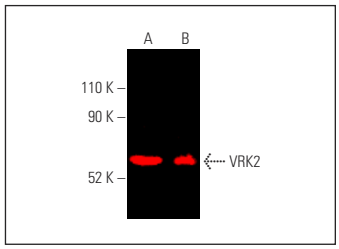
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



VRK2 (H-5): sc-365199. Western blot analysis of VRK2 expression in K-562 (**A**), A2058 (**B**) and HL-60 (**C**) whole cell lysates and HeLa nuclear extract (**D**).



VRK2 (H-5): sc-365199. Near-Infrared western blot analysis of VRK2 expression in HeLa nuclear extract (**A**) and Hep G2 whole cell lysate (**B**). Blocked with UltraCruz® Blocking Reagent: sc-516214. Detection reagent used: m-IgG_1 BP-CFL 790: sc-533666.

SELECT PRODUCT CITATIONS

1. Olson, A.T., et al. 2017. Deletion of the vaccinia virus B1 kinase reveals essential functions of this enzyme complemented partly by the homologous cellular kinase VRK2. J. Virol. 91: e00635-17.
2. Jeong, Y.H., et al. 2018. Vaccinia-related kinase 2 modulates role of dysbindin by regulating protein stability. J. Neurochem. 147: 609-625.
3. Ryu, H.G., et al. 2019. HNRNP Q suppresses polyglutamine Huntingtin aggregation by post-transcriptional regulation of vaccinia-related kinase 2. J. Neurochem. 149: 413-426.
4. Rico, A.B., et al. 2019. The vaccinia virus (VACV) B1 and cellular VRK2 kinases promote VACV replication factory formation through phosphorylation-dependent inhibition of VACV B12. J. Virol. 93: e00855-19.
5. Cartwright, T.N., et al. 2022. Dissecting the roles of Haspin and VRK1 in Histone H3 phosphorylation during mitosis. Sci. Rep. 12: 11210.
6. Kalam, H., et al. 2023. Identification of host regulators of *Mycobacterium tuberculosis* phenotypes uncovers a role for the MMGT1-GPR156 lipid droplet axis in persistence. Cell Host Microbe 31: 978-992.e5.
7. Gwak, S.H., et al. 2023. Vaccinia-related kinase 2 variants differentially affect breast cancer growth by regulating kinase activity. Oncol. Res. 32: 421-432.

STORAGE

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