SANTA CRUZ BIOTECHNOLOGY, INC.

p-Vav (9.Tyr 174): sc-135788

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Vav proteins are guanine nucleotide exchange factors for Rho family GTPases which activate pathways leading to Actin cytoskeletal rearrangements and transcriptional alterations. Vav proteins contain several protein binding domains which can link cell surface receptors to downstream signaling proteins. Vav3 is a Ros receptor protein tyrosine kinase (RPTK) interacting protein and has a broad tissue expression profile that is distinct from those of Vav and Vav2. Vav3 mediates RPTK signaling and regulates GTPase activity, its native and mutant forms are able to modulate cell morphology, and it has the potential to induce cell transformation. For example, Vav3 induces marked membrane ruffles and microspikes in NIH/3T3 cells. Vav works as a GDP/GTP exchange factor for Rac GTPases, thereby facilitating the transition of these proteins from the inactive (GDP-bound) into the active (GTP-bound) state. The stimulation of Vav exchange activity during cell signaling is mediated by tyrosine phosphorylation. The residue, Tyrosine 174, is phosphorylated following the stimulation of mitogenic and antigenic receptors. This phosphorylation event is conserved in Vav2 and Vav3, the other two members of the Vav family.

REFERENCES

1. Movilla, N. and Bustelo, X.R. 1999. Biological and regulatory properties of Vav3, a new member of the Vav family of oncoproteins. Mol. Cell. Biol. 19: 7870-7885.
2. Lopez-Lago, M., et al. 2000. Tyrosine phosphorylation mediates both activation and downmodulation of the biological activity of Vav. Mol. Cell. Biol. 20: 1678-1691.
3. Moores, S.L., et al. 2000. Vav family proteins couple to diverse cell surface receptors. Mol. Cell. Biol. 20: 6364-6373.
4. Zeng, L., et al. 2000. Vav3 mediates receptor protein tyrosine kinase signaling, regulates GTPase activity, modulates cell morphology, and induces cell transformation. Mol. Cell. Biol. 20: 9212-9224.

CHROMOSOMAL LOCATION

Genetic locus: VAV1 (human) mapping to 19p13.3; Vav1 (mouse) mapping to 17 D.

SOURCE

p-Vav (9.Tyr 174) is a mouse monoclonal antibody raised against a short amino acid sequence containing Tyr 174 phosphorylated Vav of human origin.

PRODUCT

Each vial contains 200 µg IgG_{2b} kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

p-Vav (9.Tyr 174) is available conjugated to agarose (sc-135788 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; and to HRP (sc-135788 HRP), 200 µg/ml, for WB, IHC(P) and ELISA.

STORAGE

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

APPLICATIONS

p-Vav (9.Tyr 174) is recommended for detection of Tyr 174 phosphorylated Vav 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)] and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

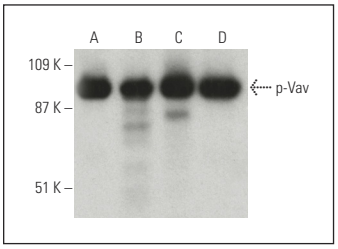
Suitable for use as control antibody for Vav siRNA (h): sc-29517, Vav siRNA (m): sc-29518, Vav shRNA Plasmid (h): sc-29517-SH, Vav shRNA Plasmid (m): sc-29518-SH, Vav shRNA (h) Lentiviral Particles: sc-29517-V and Vav shRNA (m) Lentiviral Particles: sc-29518-V.

Positive Controls: Ramos cell lysate: sc-2216, NCI-H929 whole cell lysate: sc-364786 or HL-60 whole cell lysate: sc-2209.

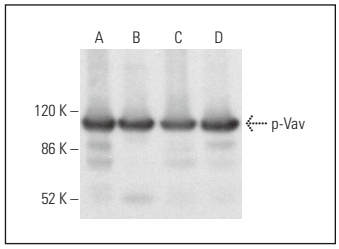
RECOMMENDED SUPPORT REAGENTS

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, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent), Lambda Phosphatase: sc-200312A and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml).

DATA



p-Vav (9.Tyr 174) HRP: sc-135788 HRP. Direct western blot analysis of Vav phosphorylation in Ramos (**A**), HL-60 (**B**), NCI-H929 (**C**) and SUP-T1 (**D**) whole cell lysates.



p-Vav (9.Tyr 174): sc-135788. Western blot analysis of Vav phosphorylation in NCI-H929 (**A**), SUP-T1 (**B**), U266 (**C**) and THP-1 (**D**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Weulersse, M., et al. 2020. Eomes-dependent loss of the co-activating receptor CD226 restrains $CD8^+$ T cell anti-tumor functions and limits the efficacy of cancer immunotherapy. Immunity 53: 824-839.e10.
2. Hao, J.W., et al. 2020. CD36 facilitates fatty acid uptake by dynamic palmitoylation-regulated endocytosis. Nat. Commun. 11: 4765.
3. Nakamura, S., et al. 2023. RhoA G17E/Vav1 signaling induces cancer invasion via matrix metalloproteinase-9 in gastric cancer. Technol. Cancer Res. Treat. 22: 15330338221146024.

RESEARCH USE

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