SANTA CRUZ BIOTECHNOLOGY, INC.

Wip1 (F-10): sc-376257

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Several major serine/threonine protein phosphatases have been identified in eukaryotic cells. These include protein phosphatase families 1, 2A, 2B, 2C, X and Y (PP-1, PP-2A, PP-2B, PP-2C, PP-X and PP-Y). These enzymes can be distinguished by their action on phosphorylase kinase and their sensitivity to certain activators and inhibitors. Wip1 (wildtype p53-induced phosphatase or PPM1D), a protein identified in the p53 DNA response pathway, is a member of the PP-2C family. Wip1 is a serine/threonine protein phosphatase which selectively inactivates p38 MAPK and dephosphorylates the ATM/ATR targets, Chk1 and p53. Wip1 is ubiquitously expressed but is present at very high levels in testis. Deletion of Wip1 results in a reduction of T and B cell function and compromised cell division, rendering cells resistant to becoming cancerous and slowing tumor development.

CHROMOSOMAL LOCATION

Genetic locus: PPM1D (human) mapping to 17q23.2; Ppm1d (mouse) mapping to 11 C.

SOURCE

Wip1 (F-10) is a mouse monoclonal antibody raised against amino acids 306-605 mapping at the C-terminus of Wip1 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.

Wip1 (F-10) is available conjugated to agarose (sc-376257 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-376257 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376257 PE), fluorescein (sc-376257 FITC), Alexa Fluor® 488 (sc-376257 AF488), Alexa Fluor® 546 (sc-376257 AF546), Alexa Fluor® 594 (sc-376257 AF594) or Alexa Fluor® 647 (sc-376257 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376257 AF680) or Alexa Fluor® 790 (sc-376257 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

Wip1 (F-10) is recommended for detection of Wip1 of mouse, rat and 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), immunohistochemistry (including paraffin-embedded sections) (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 Wip1 siRNA (h): sc-39205, Wip1 siRNA (m): sc-39206, Wip1 shRNA Plasmid (h): sc-39205-SH, Wip1 shRNA Plasmid (m): sc-39206-SH, Wip1 shRNA (h) Lentiviral Particles: sc-39205-V and Wip1 shRNA (m) Lentiviral Particles: sc-39206-V.

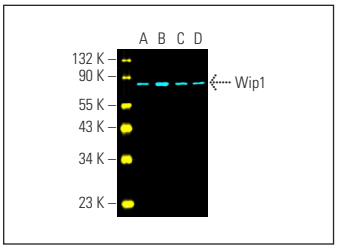
Molecular Weight of Wip1: 64 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, Y79 cell lysate: sc-2240 or MCF7 whole cell lysate: sc-2206.

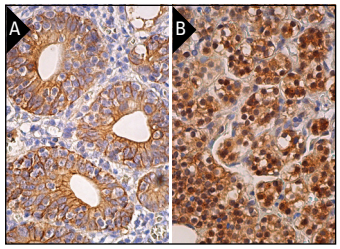
STORAGE

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

DATA



Wip1 (F-10) Alexa Fluor® 647: sc-376257 AF647. Direct fluorescent western blot analysis of Wip1 expression in Jurkat (**A**), MCF7 (**B**), Y79 (**C**) and SH-SY5Y (**D**) whole cell lysates. Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker™ MW Tag-Alexa Fluor® 488: sc-516790.



Wip1 (F-10): sc-376257. Immunoperoxidase staining of formalin fixed, paraffin-embedded human small intestine tissue showing cytoplasmic and membrane staining of glandular cells (**A**). Immunoperoxidase staining of formalin fixed, paraffin-embedded human parathyroid gland tissue showing nuclear and cytoplasmic staining of glandular cells (**B**).

SELECT PRODUCT CITATIONS

1. Kleiblova, P., et al. 2013. Gain-of-function mutations of PPM1D/Wip1 impair the p53-dependent G_1 checkpoint. J. Cell Biol. 201: 511-521.
2. Zhang, L., et al. 2014. Exome sequencing identifies somatic gain-of-function PPM1D mutations in brainstem gliomas. Nat. Genet. 46: 726-730.
3. Brazina, J., et al. 2015. DNA damage-induced regulatory interplay between DAXX, p53, ATM kinase and Wip1 phosphatase. Cell Cycle 14: 375-387.
4. Esfandiari, A., et al. 2016. Chemical inhibition of wild-type p53-induced phosphatase 1 (Wip1/PPM1D) by GSK2830371 potentiates the sensitivity to MDM2 inhibitors in a p53-dependent manner. Mol. Cancer Ther. 15: 379-391.
5. Wamsley, J.J., et al. 2017. Loss of LZAP inactivates p53 and regulates sensitivity of cells to DNA damage in a p53-dependent manner. Oncogenesis 6: e314.
6. Wu, C.E., et al. 2018. Targeting negative regulation of p53 by MDM2 and Wip1 as a therapeutic strategy in cutaneous melanoma. Br. J. Cancer 118: 495-508.
7. Liu, Y., et al. 2018. Targeting 17q23 amplicon to overcome the resistance to anti-HER2 therapy in $HER2^+$ breast cancer. Nat. Commun. 9: 4718.
8. Hsu, J.I., et al. 2018. PPM1D mutations drive clonal hematopoiesis in response to cytotoxic chemotherapy. Cell Stem Cell 23: 700-713.e6.
9. Wang, P., et al. 2019. Wip1 cooperates with KPNA2 to modulate the cell proliferation and migration of colorectal cancer via a p53-dependent manner. J. Cell. Biochem. 120: 15709-15718.
10. Burdova, K., et al. 2019. Wip1 promotes homologous recombination and modulates sensitivity to PARP inhibitors. Cells 8: 1258.

RESEARCH USE

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