SANTA CRUZ BIOTECHNOLOGY, INC.

PMS2 (B-3): sc-25315

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

The finding that mutations in DNA mismatch repair genes are associated with hereditary nonpolyposis colorectal cancer (HNPCC) has resulted in considerable interest in the understanding of the mechanism of DNA mismatch repair. Initially, inherited mutations in the MSH2 and MLH1 homologs of the bacterial DNA mismatch repair genes MutS and MutL were demonstrated at high frequency in HNPCC and were shown to be associated with microsatellite instability. The demonstration that 10 to 45% of pancreatic, gastric, breast, ovarian and small cell lung cancers also display microsatellite instability has been interpreted to suggest that DNA mismatch repair is not restricted to HNPCC tumors but is a common feature in tumor initiation or progression. Two additional homologs of the prokaryotic MutL gene, designated PMS1 and PMS2, have been identified and shown to be mutated in the germline of HNPCC patients.

CHROMOSOMAL LOCATION

Genetic locus: PMS2 (human) mapping to 7p22.1; Pms2 (mouse) mapping to 5 G2.

SOURCE

PMS2 (B-3) is a mouse monoclonal antibody raised against amino acids 563-862 of PMS2 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.

PMS2 (B-3) is available conjugated to agarose (sc-25315 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-25315 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-25315 PE), fluorescein (sc-25315 FITC), Alexa Fluor® 488 (sc-25315 AF488), Alexa Fluor® 546 (sc-25315 AF546), Alexa Fluor® 594 (sc-25315 AF594) or Alexa Fluor® 647 (sc-25315 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-25315 AF680) or Alexa Fluor® 790 (sc-25315 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

APPLICATIONS

PMS2 (B-3) is recommended for detection of PMS2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:500), 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 PMS2 siRNA (h): sc-36287, PMS2 siRNA (m): sc-36288, PMS2 shRNA Plasmid (h): sc-36287-SH, PMS2 shRNA Plasmid (m): sc-36288-SH, PMS2 shRNA (h) Lentiviral Particles: sc-36287-V and PMS2 shRNA (m) Lentiviral Particles: sc-36288-V.

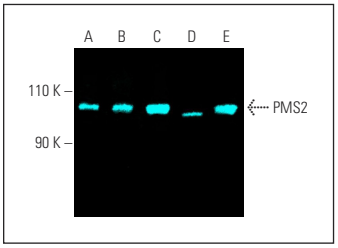
Molecular Weight of PMS2: 110 kDa.

Positive Controls: HeLa whole cell lysate: sc-2200, NIH/3T3 whole cell lysate: sc-2210 or A-431 nuclear extract: sc-2122.

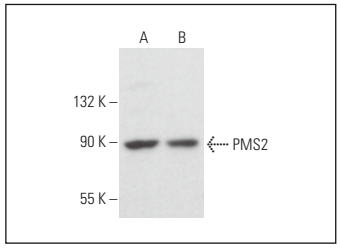
STORAGE

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

DATA



PMS2 (B-3) Alexa Fluor® 647: sc-25315 AF647. Direct fluorescent western blot analysis of PMS2 expression in HeLa (**A**), NIH/3T3 (**B**), AN3 CA (**C**) and U-698-M (**D**) whole cell lysates and A-431 nuclear extract (**E**). Blocked with UltraCruz® Blocking Reagent: sc-516214.



PMS2 (B-3): sc-25315. Western blot analysis of PMS2 expression in NIH/3T3 (**A**) and L6 (**B**) whole cell lysates.

SELECT PRODUCT CITATIONS

1. Müller, A., et al. 2004. Challenges and pitfalls in HNPCC screening by microsatellite analysis and immunohistochemistry. J. Mol. Diagn. 6: 308-315.
2. Plotz, G., et al. 2006. Mutations in the MutSα interaction interface of MLH1 can abolish DNA mismatch repair. Nucleic Acids Res. 34: 6574-6586.
3. Eizuka, M., et al. 2018. Colorectal adenocarcinoma with an alternative serrated pathway. Case Rep. Gastroenterol. 12: 116-124.
4. D'Arcy, B.M., et al. 2019. Biochemical and structural characterization of two variants of uncertain significance in the PMS2 gene. Hum. Mutat. 40: 458-471.
5. Goold, R., et al. 2021. FAN1 controls mismatch repair complex assembly via MLH1 retention to stabilize CAG repeat expansion in Huntington's disease. Cell Rep. 36: 109649.
6. Kim, S.C., et al. 2022. Multifocal organoid capturing of colon cancer reveals pervasive intratumoral heterogenous drug responses. Adv. Sci. 9: e2103360.
7. D'Arcy, B.M., et al. 2022. PMS2 variant results in loss of ATPase activity without compromising mismatch repair. Mol. Genet. Genomic Med. 10: e1908.
8. Sakurada-Aono, M., et al. 2023. HTLV-1 bZIP factor impairs DNA mismatch repair system. Biochem. Biophys. Res. Commun. 657: 43-49.
9. Nguyen, T.P., et al. 2023. Inducible mismatch repair streamlines forward genetic approaches to target identification of cytotoxic small molecules. Cell Chem. Biol. 30: 1453-1467.e8.
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RESEARCH USE

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