SANTA CRUZ BIOTECHNOLOGY, INC.

MSH2 (D-6): sc-376384

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: MSH2 (human) mapping to 2p21; Msh2 (mouse) mapping to 17 E4.

SOURCE

MSH2 (D-6) is a mouse monoclonal antibody raised against amino acids 1-300 of MSH2 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.

MSH2 (D-6) is available conjugated to agarose (sc-376384 AC), 500 µg/ 0.25 ml agarose in 1 ml, for IP; to HRP (sc-376384 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-376384 PE), fluorescein (sc-376384 FITC), Alexa Fluor® 488 (sc-376384 AF488), Alexa Fluor® 546 (sc-376384 AF546), Alexa Fluor® 594 (sc-376384 AF594) or Alexa Fluor® 647 (sc-376384 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-376384 AF680) or Alexa Fluor® 790 (sc-376384 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Alexa Fluor® is a trademark of Molecular Probes, Inc., Oregon, USA

APPLICATIONS

MSH2 (D-6) is recommended for detection of MSH2 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) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for MSH2 siRNA (h): sc-35969, MSH2 siRNA (m): sc-35970, MSH2 shRNA Plasmid (h): sc-35969-SH, MSH2 shRNA Plasmid (m): sc-35970-SH, MSH2 shRNA (h) Lentiviral Particles: sc-35969-V and MSH2 shRNA (m) Lentiviral Particles: sc-35970-V.

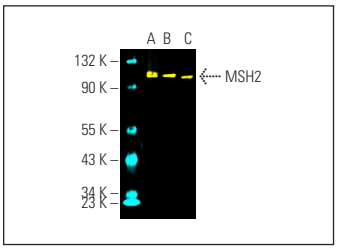
Molecular Weight of MSH2: 100 kDa.

Positive Controls: Hep G2 cell lysate: sc-2227, F9 cell lysate: sc-2245 or HeLa nuclear extract: sc-2120.

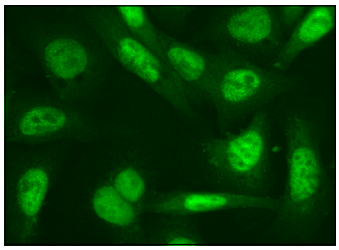
RECOMMENDED SUPPORT REAGENTS

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



MSH2 (D-6) Alexa Fluor® 488: sc-376384 AF488. Direct fluorescent western blot analysis of MSH2 expression in Hep G2 (**A**) and F9 (**B**) whole cell lysates and HeLa nuclear extract (**C**). Blocked with UltraCruz® Blocking Reagent: sc-516214. Cruz Marker™ Molecular Weight Standards detected with Cruz Marker MW Tag-Alexa Fluor® 647: sc-516791.



MSH2 (D-6) Alexa Fluor® 488: sc-376384 AF488. Direct immunofluorescence staining of formalin-fixed SW480 cells showing nuclear localization. Blocked with UltraCruz® Blocking Reagent: sc-516214.

SELECT PRODUCT CITATIONS

1. Doukas, S.G., et al. 2020. The effect of NNK, a tobacco smoke carcinogen, on the miRNA and mismatch DNA repair expression profiles in lung and head and neck squamous cancer cells. Cells 9: 1031.
2. Liu, Q., et al. 2020. Yeast mismatch repair components are required for stable inheritance of gene silencing. PLoS Genet. 16: e1008798.
3. Kadyrova, L.Y., et al. 2022. The nuclease activity of DNA2 promotes exonuclease 1-independent mismatch repair. J. Biol. Chem. 298: 101831.
4. Doukas, S.G., et al. 2022. The effect of tobacco smoke N-nitrosamines, NNK and NDEA, and nicotine, on DNA mismatch repair mechanism and miRNA markers, in hypopharyngeal squamous cell carcinoma: an *in vivo* model and clinical evidence. Curr. Oncol. 29: 5531-5549.
5. Liu, T., et al. 2024. Molecular basis of CX-5461-induced DNA damage response in primary vascular smooth muscle cells. Heliyon 10: e37227.

STORAGE

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

RESEARCH USE

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