SANTA CRUZ BIOTECHNOLOGY, INC.

MSH2 (G-7): sc-376501

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.

REFERENCES

1. Peltomäki, P., et al. 1993. Genetic mapping of a locus predisposing to human colorectal cancer. Science 260: 810-812.
2. Ionov, Y., et al. 1993. Ubiquitous somatic mutations in simple repeated sequences reveal a new mechanism for colonic carcinogenesis. Nature 363: 558-561.
3. Papadopoulos, N., et al. 1994. Mutation of a mutL homolog in hereditary colon cancer. Science 263: 1625-1629.
4. Prolla, T.A., et al. 1994. MLH1, PMS1, and MSH2 interactions during the initation of DNA mismatch repair in yeast. Science 265: 1091-1092.
5. Palombo, F., et al. 1994. Mismatch repair and cancer. Nature 367: 417-418.
6. Bronner, C.E., et al. 1994. Mutation in the DNA mismatch repair gene homologue hMLH1 is associated with hereditary non-polyposis colon cancer. Nature 368: 258-261.
7. Nicolaides, N.C., et al. 1994. Mutations of two PMS homologues in hereditary nonpolyposis colon cancer. Nature 371: 75-80.

CHROMOSOMAL LOCATION

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

SOURCE

MSH2 (G-7) is a mouse monoclonal antibody raised against amino acids 1-300 of MSH2 of human origin.

PRODUCT

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

STORAGE

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

APPLICATIONS

MSH2 (G-7) 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.

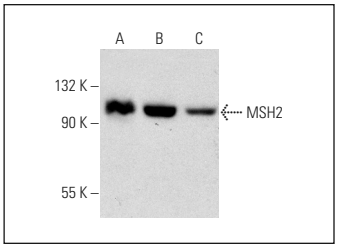
Molecular Weight of MSH2: 100 kDa.

Positive Controls: NCI-H292 whole cell lysate: sc-364179, F9 cell lysate: sc-2245 or NIH/3T3 whole cell lysate: sc-2210.

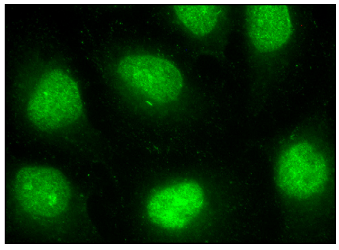
RECOMMENDED SUPPORT REAGENTS

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 (G-7): sc-376501. Western blot analysis of MSH2 expression in NCI-H292 (**A**), F9 (**B**) and NIH/3T3 (**C**) whole cell lysates.



MSH2 (G-7): sc-376501. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Kim, A., et al. 2020. Immunoglobulin class switch recombination is initiated by rare cytosine deamination events at switch regions. Mol. Cell. Biol. E-published.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.