SANTA CRUZ BIOTECHNOLOGY, INC.

MSH2 (25D12): sc-56163

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 hPMS1 and hPMS2, 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.

SOURCE

MSH2 (25D12) is a mouse monoclonal antibody raised against full length MSH2 of human origin.

PRODUCT

Each vial contains 250 µl culture supernatant containing IgG_1 with < 0.1% sodium azide.

STORAGE

For immediate and continuous use, store at 4° C for up to one month. For sporadic use, freeze in working aliquots in order to avoid repeated freeze/thaw cycles. If turbidity is evident upon prolonged storage, clarify solution by centrifugation.

APPLICATIONS

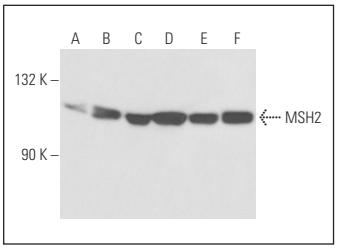
MSH2 (25D12) is recommended for detection of MSH2 of human origin by Western Blotting (starting dilution to be determined by researcher, dilution range 1:10-1:200), immunoprecipitation [1-2 µl per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution to be determined by researcher, dilution range 1:10-1:200), immunohistochemistry (including paraffin-embedded sections) (starting dilution to be determined by researcher, dilution range 1:10-1:200) and solid phase ELISA (starting dilution to be determined by researcher, dilution range 1:30-1:3000).

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

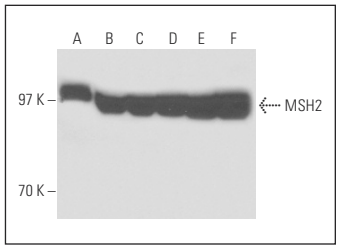
Molecular Weight of MSH2: 100 kDa.

Positive Controls: A-431 whole cell lysate: sc-2201, SW480 cell lysate: sc-2219 or HeLa nuclear extract: sc-2120.

DATA



MSH2 (25D12): sc-56163. Western blot analysis of MSH2 expression in A-431 (**A**), SW480 (**B**) and HeLa (**C**) whole cell lysates and SW480 (**D**), A-431 (**E**) and HeLa (**F**) nuclear extracts.



MSH2 (25D12): sc-56163. Western blot analysis of MSH2 expression in A-431 (**A**) and SW480 (**B**) whole cell lysates and A-431 (**C**), U-937 (**D**), MOLT-4 (**E**) and SW480 (**F**) nuclear extracts.

SELECT PRODUCT CITATIONS

1. Hassen, S., et al. 2011. Detection of DNA mismatch repair proteins in fresh human blood lymphocytes—towards a novel method for hereditary non-polyposis colorectal cancer (Lynch syndrome) screening. J. Exp. Clin. Cancer Res. 30: 100.
2. Tao, X., et al. 2017. HDAC10 expression is associated with DNA mismatch repair gene and is a predictor of good prognosis in colon carcinoma. Oncol. Lett. 14: 4923-4929.
3. Kumar, A., et al. 2018. Pattern of mismatch repair protein loss and its clinicopathological correlation in colorectal cancer in North India. S. Afr. J. Surg. 56: 25-29.
4. Niu, W., et al. 2019. Correlation between microsatellite instability and RAS gene mutation and stage III colorectal cancer. Oncol. Lett. 17: 332-338.
5. Yang, M., et al. 2022. KDM6B promotes PARthanatos via suppression of O^6-methylguanine DNA methyltransferase repair and sustained checkpoint response. Nucleic Acids Res. 50: 6313-6331.

RESEARCH USE

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