SANTA CRUZ BIOTECHNOLOGY, INC.

MSH3 (C-8): sc-271079

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

DNA mismatch repair (MMR) is essential for maintaining the integrity of the genome during replication. This process is highly conserved across bacterial and eukaryotic systems, as many of the genes expressed in bacteria are closely related to the yeast and mammalian homologs. In bacteria two proteins, MutS and MutL, form homodimeric complexes that are responsible for recognizing and facilitating MMR. Human homologs of these proteins include MSH2 and MSH3 (MutS homolog 2 and 3), and the corresponding human homologs of MutL are MLH1, PMS1, PMS2 and MLH3. MSH2 and MSH3 form heterodimers that cooperatively mediate MMR. MLH3 preferentially dimerizes with MLH1 to repair DNA mismatches and restore the stability to the genome. Mutations in the genes encoding MSH2 and MLH1 induce microsatellite instablitiy of the DNA. These mutations are associated with the occurrence of hereditary nonpolyposis colorectal cancer (HNPCC) and are a common feature in the progression of many other cancers.

REFERENCES

1. Papadopoulos, N., et al. 1994. Mutation of a MutL homolog in hereditary colon cancer. Science 263: 1625-1629.
2. Palombo, F., et al. 1994. Mismatch repair and cancer. Nature 367: 417.

CHROMOSOMAL LOCATION

Genetic locus: MSH3 (human) mapping to 5q14.1; Msh3 (mouse) mapping to 13 C3.

SOURCE

MSH3 (C-8) is a mouse monoclonal antibody raised against amino acids 61-360 of MSH3 of human origin.

PRODUCT

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

APPLICATIONS

MSH3 (C-8) is recommended for detection of MSH3 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 MSH3 siRNA (h): sc-35971, MSH3 siRNA (m): sc-35972, MSH3 shRNA Plasmid (h): sc-35971-SH, MSH3 shRNA Plasmid (m): sc-35972-SH, MSH3 shRNA (h) Lentiviral Particles: sc-35971-V and MSH3 shRNA (m) Lentiviral Particles: sc-35972-V.

Molecular Weight (predicted) of MSH3: 127 kDa.

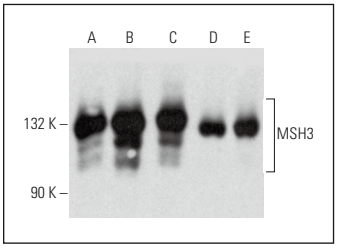
Molecular Weight (observed) of MSH3: 132 kDa.

Positive Controls: SW480 cell lysate: sc-2219, MOLT-4 cell lysate: sc-2233 or HeLa whole cell lysate: sc-2200.

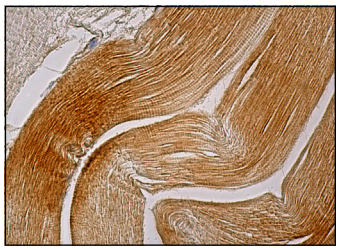
RECOMMENDED SUPPORT REAGENTS

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. 4) Immunohistochemistry: use m-IgGκ BP-HRP: sc-516102 with DAB, 50X: sc-24982 and Immunohistomount: sc-45086, or Organo/Limonene Mount: sc-45087.

DATA



MSH3 (C-8): sc-271079. Western blot analysis of MSH3 expression in HeLa (**A**), SW480 (**B**), MOLT-4 (**C**) and NIH/3T3 (**D**) whole cell lysates and KNRK nuclear extract (**E**).



MSH3 (C-8): sc-271079. Immunoperoxidase staining of formalin fixed, paraffin-embedded human skeletal muscle tissue showing cytoplasmic staining of myocytes.

SELECT PRODUCT CITATIONS

1. Zhou, Y., et al. 2016. CGG-repeat dynamics and FMR1 gene silencing in fragile X syndrome stem cells and stem cell-derived neurons. Mol. Autism 7: 42.
2. Zhao, X.N., et al. 2016. A MutSβ-dependent contribution of MutSα to repeat expansions in fragile X premutation mice? PLoS Genet. 12: e1006190.
3. Hu, M., et al. 2020. Altered expression of DNA damage repair genes in the brain tissue of mice conceived by *in vitro* fertilization. Mol. Hum. Reprod. 26: 141-153.

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.

PROTOCOLS

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