SANTA CRUZ BIOTECHNOLOGY, INC.

MSH3 (H-300): sc-11441

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 (H-300) is a rabbit polyclonal antibody raised against amino acids 61-360 of MSH3 of human origin.

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

MSH3 (H-300) is recommended for detection of MSH3 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, 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.

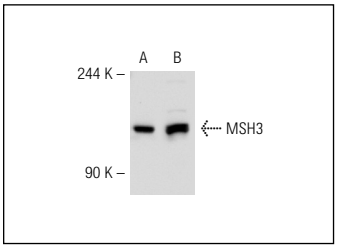
Molecular Weight (observed) of MSH3: 132 kDa.

Positive Controls: HeLa nuclear extract: sc-2120, SW480 cell lysate: sc-2219 or MOLT-4 cell lysate: sc-2233.

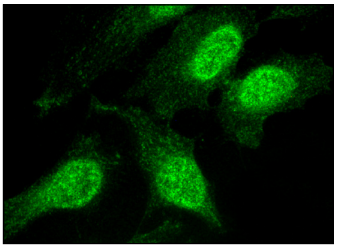
STORAGE

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

DATA



MSH3 (H-300): sc-11441. Western blot analysis of MSH3 expression in 293T whole cell lysate (**A**) and HeLa nuclear extract (**B**).



MSH3 (H-300): sc-11441. Immunofluorescence staining of methanol-fixed HeLa cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Faber, P., et al. 2006. Frequent genomic alterations in epithelium measured by microsatellite instability following allogeneic hematopoietic cell transplantation in humans. Blood 107: 3389-3396.
2. Floer, M., et al. 2008. Role of MutS homolog 2 (MSH2) in intestinal myofibroblast proliferation during Crohn's disease stricture formation. Am. J. Physiol. Gastrointest. Liver Physiol. 295: G581-G590.
3. Mastrocola, A.S., et al. 2010. Lynch syndrome-associated mutations in MSH2 alter DNA repair and checkpoint response functions *in vivo*. Hum. Mutat. 31: E1699-E1708.
4. Mohni, K.N., et al. 2011. DNA mismatch repair proteins are required for efficient herpes simplex virus 1 replication. J. Virol. 85: 12241-12253.
5. Lachapelle, S., et al. 2011. Proteome-wide identification of WRN-interacting proteins in untreated and nuclease-treated samples. J. Proteome Res. 10: 1216-1227.

RESEARCH USE

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

PROTOCOLS

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