SANTA CRUZ BIOTECHNOLOGY, INC.

MSH3 (M-18): sc-5692

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.
3. Watanabe, A, et al. 1996. Genomic organization and expression of the human MSH3 gene. Genomics 31: 311-318.
4. Prolla, T.A., et al. 1998. Tumour susceptibility and spontaneous mutation in mice deficient in Mlh1, Pms1 and Pms2 DNA mismatch repair. Nat. Genet. 18: 276-279.
5. Yao, X., et al. 1999. Different mutator phenotypes in Mlh1- versus Pms2-deficient mice. Proc. Natl. Acad. Sci. USA 96: 6850-6855.
6. Kolodner, R.D., et al. 1999. Eukaryotic DNA mismatch repair. Curr. Opin. Genet. Dev. 9: 89-96.
7. Harfe, B.D., et al. 2000. Discrete *in vivo* roles for the MutL homologs mlh2p and mlh3p in the removal of frameshift intermediates in budding yeast. Curr. Biol. 10: 145-148.
8. Lipkin, S.M., et al. 2000. MLH3: a DNA mismatch repair gene associated with mammalian microsatellite instability. Nat. Genet. 24: 27-35.

CHROMOSOMAL LOCATION

Genetic locus: Msh3 (mouse) mapping to 13 C3.

SOURCE

MSH3 (M-18) is an affinity purified goat polyclonal antibody raised against a peptide mapping at the C-terminus of MSH3 of mouse origin.

PRODUCT

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

Blocking peptide available for competition studies, sc-5692 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

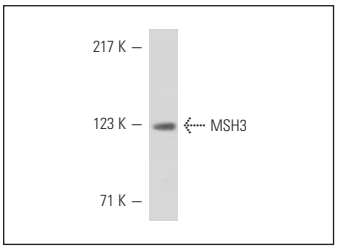
MSH3 (M-18) is recommended for detection of MSH3 of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for MSH3 siRNA (m): sc-35972, MSH3 shRNA Plasmid (m): sc-35972-SH and MSH3 shRNA (m) Lentiviral Particles: sc-35972-V.

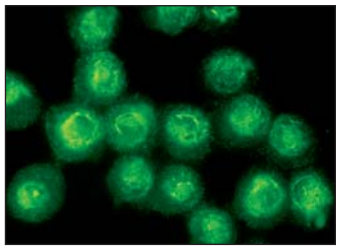
Molecular Weight of MSH3: 141 kDa.

Positive Controls: KNRK nuclear extract: sc-2141.

DATA



MSH3 (M-18): sc-5692. Western blot analysis of MSH3 expression in KNRK nuclear extract.



MSH3 (M-18): sc-5692. Immunofluorescence staining of methanol-fixed KNRK cells showing nuclear localization.

SELECT PRODUCT CITATIONS

1. Foiry, L., et al. 2006. MSH3 is a limiting factor in the formation of intergenerational CTG expansions in DM1 transgenic mice. Hum. Genet. 119: 520-526.

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 or our catalog for detailed protocols and support products.