

# MSH4 (C-19): sc-69510

## BACKGROUND

MSH4 (mutS homolog 4) is a 936 amino acid protein that is expressed specifically in ovary and testis and belongs to the DNA mismatch repair mutS family. Existing as a heterooligomer with MSH5, MSH4 is involved in meiotic recombination and is specifically required for the proper segregation and reciprocal recombination of homologous chromosomes at meiosis. The gene encoding MSH4 maps to human chromosome 1, which spans 260 million base pairs, contains over 3,000 genes and comprises nearly 8% of the human genome. Chromosome 1 houses a large number of disease-associated genes, including those that are involved in familial adenomatous polyposis, Stickler syndrome, Parkinson's disease, Gaucher disease, schizophrenia and Usher syndrome. Aberrations in chromosome 1 are found in a variety of cancers, including head and neck cancer, malignant melanoma and multiple myeloma.

## REFERENCES

- Paquis-Flucklinger, V., Santucci-Darmanin, S., Paul, R., Saunières, A., Turc-Carel, C. and Desnuelle, C. 1997. Cloning and expression analysis of a meiosis-specific MutS homolog: the human MSH4 gene. *Genomics* 44: 188-194.
- Kneitz, B., Cohen, P.E., Avdievich, E., Zhu, L., Kane, M.F., Hou, H., Kolodner, R.D., Kucherlapati, R., Pollard, J.W. and Edelman, W. 2000. MutS homolog 4 localization to meiotic chromosomes is required for chromosome pairing during meiosis in male and female mice. *Genes Dev.* 14: 1085-1097.
- Santucci-Darmanin, S., Neyton, S., Lespinasse, F., Saunières, A., Gaudray, P. and Paquis-Flucklinger, V. 2002. The DNA mismatch-repair MLH3 protein interacts with MSH4 in meiotic cells, supporting a role for this MutL homolog in mammalian meiotic recombination. *Hum. Mol. Genet.* 11: 1697-1706.
- Her, C., Wu, X., Griswold, M.D. and Zhou, F. 2003. Human MutS homologue MSH4 physically interacts with von Hippel-Lindau tumor suppressor-binding protein 1. *Cancer Res.* 63: 865-872.
- Snowden, T., Acharya, S., Butz, C., Berardini, M. and Fishel, R. 2004. hMSH4-hMSH5 recognizes Holliday Junctions and forms a meiosis-specific sliding clamp that embraces homologous chromosomes. *Mol. Cell* 15: 437-451.
- Yi, W., Wu, X., Lee, T.H., Doggett, N.A. and Her, C. 2005. Two variants of MutS homolog hMSH5: prevalence in humans and effects on protein interaction. *Biochem. Biophys. Res. Commun.* 332: 524-532.
- Online Mendelian Inheritance in Man, OMIM<sup>™</sup>. 2006. Johns Hopkins University, Baltimore, MD. MIM Number: 602105. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
- Her, C., Zhao, N., Wu, X. and Tompkins, J.D. 2007. MutS homologues hMSH4 and hMSH5: diverse functional implications in humans. *Front. Biosci.* 12: 905-911.

## CHROMOSOMAL LOCATION

Genetic locus: MSH4 (human) mapping to 1p31.1; Msh4 (mouse) mapping to 3 H3.

## SOURCE

MSH4 (C-19) is an affinity purified goat polyclonal antibody raised against a peptide mapping near the C-terminus of MSH4 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.

Blocking peptide available for competition studies, sc-69510 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

Available as TransCruz reagent for Gel Supershift and ChIP applications, sc-69510 X, 200 µg/0.1 ml.

## APPLICATIONS

MSH4 (C-19) is recommended for detection of MSH4 of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), 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).

MSH4 (C-19) is also recommended for detection of MSH4 in additional species, including equine, canine, bovine and porcine.

Suitable for use as control antibody for MSH4 siRNA (h): sc-75830, MSH4 siRNA (m): sc-75831, MSH4 shRNA Plasmid (h): sc-75830-SH, MSH4 shRNA Plasmid (m): sc-75831-SH, MSH4 shRNA (h) Lentiviral Particles: sc-75830-V and MSH4 shRNA (m) Lentiviral Particles: sc-75831-V.

MSH4 (C-19) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of MSH4: 105 kDa.

## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker<sup>™</sup> compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> Molecular Weight Standards: sc-2035, TBS Blotto A Blocking Reagent: sc-2333 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz<sup>™</sup> Mounting Medium: sc-24941.

## 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](http://www.scbt.com) or our catalog for detailed protocols and support products.