SANTA CRUZ BIOTECHNOLOGY, INC.

MSH5 (N-20): sc-82669

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

MSH5 (mutS homolog 5 *(E. coli)*), also known as G7, NG23 or MutSH5, is an 834 amino acid protein that belongs to the mutS family of DNA mismatch repair proteins. Expressed ubiquitously with highest expression in thymus and testis, MSH5 exists as a heterooligomer with MSH4 and is involved in meiotic recombination, specifically functioning to facilitate homologous crossovers during meiosis. Multiple isoforms of MSH5 exist due to alternative splicing events. The gene encoding MSH5 maps to human chromosome 6, which contains 170 million base pairs and comprises nearly 6% of the human genome. Deletion of a portion of the q arm of chromosome 6 is associated with early onset intestinal cancer, suggesting the presence of a cancer susceptibility locus. Additionally, Porphyria cutanea tarda, Parkinson's disease, Stickler syndrome and a susceptibility to bipolar disorder are all associated with genes that map to chromosome 6.

REFERENCES

1. Her, C. and Doggett, N.A. 1998. Cloning, structural characterization, and chromosomal localization of the human orthologue of *Saccharomyces cerevisiae* MSH5 gene. Genomics 52: 50-61.
2. Winand, N.J., Panzer, J.A. and Kolodner, R.D. 1998. Cloning and characterization of the human and *Caenorhabditis elegans* homologs of the *Saccharomyces cerevisiae* MSH5 gene. Genomics 53: 69-80.
3. Bocker, T., Barusevicius, A., Snowden, T., Rasio, D., Guerrette, S., Robbins, D., Schmidt, C., Burczak, J., Croce, C.M., Copeland, T., Kovatich, A.J. and Fishel, R. 1999. hMSH5: a human MutS homologue that forms a novel heterodimer with hMSH4 and is expressed during spermatogenesis. Cancer Res. 59: 816-822.
4. Edelmann, W., Cohen, P.E., Kneitz, B., Winand, N., Lia, M., Heyer, J., Kolodner, R., Pollard, J.W. and Kucherlapati, R. 1999. Mammalian MutS homologue 5 is required for chromosome pairing in meiosis. Nat. Genet. 21: 123-127.
5. 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.
6. Sekine, H., Ferreira, R.C., Pan-Hammarström, Q., Graham, R.R., Ziemba, B., de Vries, S.S., Liu, J., Hippen, K., Koeuth, T., Ortmann, W., Iwahori, A., Elliott, M.K., Offer, S., Skon, C., Du, L., Novitzke, J., Lee, A.T., et al. 2007. Role for MSH5 in the regulation of Ig class switch recombination. Proc. Natl. Acad. Sci. USA 104: 7193-7198.
7. Online Mendelian Inheritance in Man, OMIM™. 2007. Johns Hopkins University, Baltimore, MD. MIM Number: 603382. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
8. Akimoto, C., Kitagawa, H., Matsumoto, T. and Kato, S. 2008. Spermatogenesis-specific association of SMCY and MSH5. Genes Cells 13: 623-633.

CHROMOSOMAL LOCATION

Genetic locus: MSH5 (human) mapping to 6p21.33; Msh5 (mouse) mapping to 17 B1.

SOURCE

MSH5 (N-20) is an affinity purified goat polyclonal antibody raised against a peptide mapping within an internal region of MSH5 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-82669 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-82669 X, 200 µg/0.1 ml.

APPLICATIONS

MSH5 (N-20) is recommended for detection of MSH5 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); non cross-reactive with other MSH family members.

MSH5 (N-20) is also recommended for detection of MSH5 in additional species, including equine, bovine and porcine.

Suitable for use as control antibody for MSH5 siRNA (h): sc-75832, MSH5 siRNA (m): sc-75833, MSH5 shRNA Plasmid (h): sc-75832-SH, MSH5 shRNA Plasmid (m): sc-75833-SH, MSH5 shRNA (h) Lentiviral Particles: sc-75832-V and MSH5 shRNA (m) Lentiviral Particles: sc-75833-V.

MSH5 (N-20) X TransCruz antibody is recommended for Gel Supershift and ChIP applications.

Molecular Weight of MSH5: 93 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™ compatible donkey anti-goat IgG-HRP: sc-2033 (dilution range: 1:2000-1:5000), Cruz Marker™ 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™ 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 or our catalog for detailed protocols and support products.