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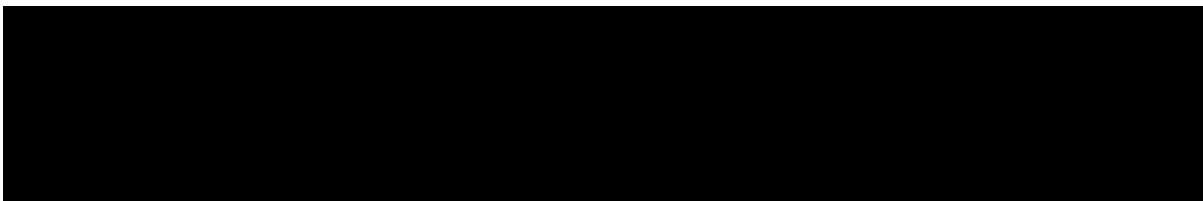
Antibodies to DNA Repair proteins

MSH4 (Arabidopssis thaliana) antibodies (human homolog of bacterial MutS1 protein) Cat # MSH4-401AP and MSH4-412AP

Alternate nomenclature/Accession #: AAT70180, MutS1 human homolog

Six strong homologs of the bacterial MutS DNA mismatch repair (MMR) gene have been identified in the yeast *Saccharomyces cerevisiae*. With the exception of the MSH1 gene, the involvement of each homolog in DNA repair and recombination during meiosis has been determined previously. Five of the homologs have been demonstrated to act in meiotic DNA repair (MSH2, MSH3, MSH6 and MSH4) and/or meiotic recombination (MSH4 and MSH5). Several strong homologs of bacterial MutS DNA mismatch repair (MMR) genes have been identified (MSH1-MSH6), with the exception of the MSH1 gene, all others have significant role in recombination and DNA repair during meiosis. MSH4, a meiosis-specific member of the MutS-homolog family of genes, is required for normal levels of recombination and fertility in budding yeast, mouse, and *Caenorhabditis elegans*. The arabidopsis specific homolog of MSH4 (AtMSH4) in reproduction was characterized in floral tissues (1). The expression of MSH4 in *A thaliana* is limited to early meiotic phase I preceding the synapsis of homologous chromosomes. The insertion of AT-DNA mutant (ATmsh4) exhibited normal vegetative growth but significant reduction in fertility consistent with meiotic defect which was further confirmed by cytological staining of meiosis. Similar reduction in meiosis was observed with RNAi dependent down regulation of MSH4 which is the result of delayed or incomplete prophase I chromosome synapsis and metaphase chiasma frequency is greatly reduced compared to wild type leading to univalence and nondisjunction in budding yeast (1). MSH4 protein has several function domains including MutS domain III which is found in MutS family of DNA mismatch repair protein and is found associated with pfam00488, pfam05188, pfam01624 and pfam05190; pfam05192. The MutS1 homolog in eukaryotes. The MutS protein initiates DNA mismatch repair by recognizing mispaired and unpaired bases embedded in duplex DNA and activating endo- and exonucleases to remove the mismatch. A *thaliana* MSH4 protein is a 792 amino acid (98-100kDa) protein expressed in nuclear compartment.

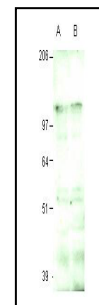
The MSH4-selective antibodies were generated against 2 synthetic peptides corresponding to residues 40-57 and 774-792 of Arabidopsis *thaliana* MSH4 protein. The antibodies to MSH4 are affinity purified over immobilized antigen matrix based chromatography. The purified antibodies are stabilized in antibody stabilization buffer containing preservatives. FabGennix Int. Inc., will also provide Western blot positive controls for MSH4 protein in ready-to-use buffer for SDS-PAGE and Western blot analyses. These standards are used to identify the MSH4 protein in unknown samples on western blotting purposes. FabGennix International Inc. also carries limited quantities of antigenic blocking peptide for MSH4 antibodies. Please inquire about pricing and availability of these products. . *FabGennix Inc.* will also conjugate antibodies with fluorescent probes upon request at a reasonable cost. Please inquire for these custom services. A complete list of these and other items can be viewed at www.FabGennix.com.



R = rat; M = mouse; H = human; C = chicken; monk = monkey ; * not all variants are labeled equally

(Note: Antigenic blocking peptides for these antibodies are available in limited quantities. Please inquire about their availability).

- Immunogen:** Synthetic peptide corresponding to the following peptide sequence from MSH4 gene (AAT70180). The synthetic peptides were taken from aa 40-57 and 774-792. The peptides were post-synthetically covalently modified to achieve desired antigenicity before coupling to a carrier protein.
- concentration:** AMSH4-401AP and MSH4-412AP IgG concentration 0.95-1.04mg/ml antibody, stabilization buffer.
- Applications:** Antibodies MSH4-401AP and MSH4-412AP is used for W B applications at 1:500 dilutions. For chromosome labeling and IHC antibody MSH4-412AP gave consistently good results compared to MSH4-401AP. Other applications for this antibody have not been tested. The dilutions for this antibody is for reference only, investigators are expected to determine the optimal conditions for specific assay in his/her laboratory. MSH4 antibody applications in IMM and other applications is not yet standardized. Recommended dilutions: WB 1:500; IMM and i.p pull-down assays: n.d
- Reactivity:** The MSH4-101AP and MSH4-412AP labels an approximately 98-100kDa MSH4 protein in western blot positive control samples for MSH4 proteins (Cat # PC-MSH4).



References:

1. Higgins JD, Armstrong SJ, Franklin FC, Jones GH. The Arabidopsis MutS homolog AtMSH4 functions at an early step in recombination: evidence for two classes of recombination in Arabidopsis. *Genes Dev.* 2004 Oct 15;18(20):2557-70.

* For users who may require large amounts of affinity purified antibodies, MSH4-401AP and MSH4-412AP, please enquire about bulk material discounts.
This Product is for Research Use Only and is NOT intended for use in humans or clinical diagnosis.

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