Msh3p functions in conjunction with Msh2p and Msh6p in the mismatch repairsystem, which plays an important role in repairing single-base mismatches and mispaired regions due to small insertions or deletions. Genetic and biochemical results suggest that the Msh2p-Msh3p heterodimer has a different substrate specificity than the Msh2p-Msh6p heterodimer. The Msh2p-Msh3p heterodimer has a higher affinity for insertion-deletion loops larger than a single nucleotide and does not bind single-base mismatches with high affinity.In addition to their role in mismatch repair, MSH2 and MSH3 are required for the removal of non-homologous DNA and regulation of heteroduplex formation during mitotic and meiotic recombination. The Msh2p-Msh3p heterodimer binds double-strand/single-strand DNA junctions, possibly acting as a scaffold to recruit additional DNA repair proteins such as Mlh1p-Pms1p heterodimer or Rad1p-Rad10p heterodimer.Msh3p is one of six E. coli MutS homologs in S. cerevisiae but is more similar to the mouse Rep-3 protein. Mutations in the H. sapiens MSH3 protein have been identified in an endometrial carcinomaand in an endometrial carcinoma cell line.