The MSH2 gene codes for a protein involved in DNA repair. Specifically, it is a part of the DNA mismatch repair (MMR) system, which plays a crucial role in maintaining the stability and integrity of the genome. The MSH2 protein is one of the key components of the MutS homolog complex, which recognizes and binds to DNA mismatches that can arise during DNA replication.

Mutations in the MSH2 gene are associated with a hereditary condition known as Lynch syndrome, also called hereditary nonpolyposis colorectal cancer (HNPCC). Lynch syndrome predisposes individuals to an increased risk of developing certain cancers, particularly colorectal cancer, as well as cancers of the endometrium, ovary, stomach, small intestine, urinary tract, and others. The mutations in MSH2 and other genes involved in Lynch syndrome can be inherited from one's parents.

Genetic testing for mutations in the MSH2 gene and other mismatch repair genes can be carried out to identify individuals at risk for Lynch syndrome. If you have specific concerns about MSH2 or Lynch syndrome, consulting with a genetic counselor or healthcare professional is recommended. Keep in mind that information in the field of genetics may have advanced since my last update in January 2022, so it's a good idea to check for the latest developments.