MLH3 Monoallelic gene

Associated Syndrome Name: Carrier Status for *MLH3*-associated polyposis syndrome

MLH3 Monoallelic gene Overview

Carrier Status for *MLH3*-associated polyposis syndrome [1, 2]

- Individuals with a mutation in only one copy of the *MLH3* gene (a monoallelic mutation) are not believed to have any increased risk for cancer over people in the general population, though there have been a few people with one mutation in this gene that have diagnoses of cancer or polyps.
- Individuals with mutations in both of their copies of the *MLH3* gene (biallelic mutations) have a condition known as *MLH3*-associated polyposis syndrome which is associated with an elevated risk for colorectal cancer and development of numerous colon polyps. This patient does not have a diagnosis of *MLH3*-associated polyposis syndrome, but may have relatives who are at risk for this condition. Please see the Information for Family Members section below for details.
- Currently there are no medical management guidelines for individuals with a single *MLH3* mutation. However, this may change as we learn more, and therefore individuals with monoallelic *MLH3* mutations may benefit from consultation with healthcare providers who have expertise in medical genetics and the care of patients with hereditary cancer syndromes.

Information for Family Members

The following information for Family Members will appear as part of the MMT for a patient found to have a mutation in the MLH3 Monoallelic gene.

This patient's relatives are at risk for carrying the same mutation(s) and associated cancer risks as this patient. Cancer risks for females and males who have this/these mutation(s) are provided below.

Family members should talk to a healthcare provider about genetic testing. Close relatives such as parents, children, brothers and sisters have the highest chance of having the same mutation(s) as this patient. Other more distant relatives such as cousins, aunts, uncles, and grandparents also have a chance of carrying the same mutation(s). Testing of at-risk relatives can identify those family members with the same mutation(s) who may benefit from surveillance and early intervention.

This patient carries a single *MLH3* mutation (monoallelic). This patient's relatives are at risk for carrying a single *MLH3* mutation, or mutations in both copies of *MLH3* (biallelic). Relatives who have inherited mutations in both copies of *MLH3* have an increased risk for colorectal cancer and development of multiple colon polyps. Genetic testing may be appropriate for close family members to determine whether they are at an increased risk for colorectal and other cancers.

References

1. Olkinuora A, et al. Biallelic germline nonsense variant of *MLH3* underlies polyposis predisposition. Genet Med. 2019 Aug;21(8):1868-1873. PMID: 30573798.

2. Liccardo R, et al. Significance of rare variants in genes involved in the pathogenesis of Lynch syndrome. Int J Mol Med. 2022 Jun;49(6):81. PMID: 35475445.

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