

About Genes

Genes are in every cell in our bodies. Genes are made of DNA. DNA tells cells how to grow and work together. We have two copies of each gene in each cell—one from our mother and one from our father.

A gene called *MUTYH* helps prevent cancer by fixing mistakes in DNA. Sometimes changes to the *MUTYH* gene happens. These changes are called mutations. Mutations can make the gene stop working. If the *MUTYH* gene stops working, mistakes in DNA cannot be fixed. This can cause cancer.

Everyone has two copies of the *MUTYH* gene. If you have mutations in both copies of *MUTYH*, you have no working copy of the gene. This means you have a high risk of developing colon polyps and colon cancer.

People with two *MUTYH* mutations have an inherited cancer syndrome called *MUTYH*-associated polyposis (MAP).

MUTYH Mutations and Cancer Risks

Colon Cancer and Polyps

People with MAP get many colon polyps. Polyps are small clusters of cells that develop on the inside of the colon. They are not cancer. If left untreated they can turn into cancer over time. In the average population, about 5 in 100 people will get colon cancer in their lifetime. For people with MAP, 43–99 in 100 people will get colon cancer in their lifetime.

Other Conditions

People with MAP are at an increased risk to get other conditions:

- Cancers or polyps in the esophagus, stomach, or small intestine
- Thyroid cancer
- Bony cysts on the jaw

MAP is rare, so it is hard to estimate the risk of getting these conditions.

Recommendations

*Men and women who have MAP **without** a personal history of colon cancer*

- Get first colonoscopy screening at age 25–30. Have follow-up colonoscopies every 1–3 years, depending on the results of your first.
- At age 30–35, get an endoscopy of the upper GI tract. Have follow-up endoscopies, depending on the results.

*Men and women who have MAP **with** a personal history of colon cancer*

- Talk with your doctor or genetic counselor about how often to get follow-up colonoscopy and endoscopy.

Children and Siblings

All children of people with MAP will inherit at least one *MUTYH* mutation. If they have only one *MUTYH* mutation, they do not have MAP. They do have a higher than average chance of getting colon cancer. For more information, see the factsheet *About MUTYH Gene Mutations*.

Both parents of people with MAP have at least one *MUTYH* mutation. Brothers and sisters of people with MAP have a chance of having one *MUTYH* mutation or having MAP.

Parents, brothers, sisters, and children of people who have MAP should meet with a genetic counselor to learn about their risk of having MAP.

Do you or a family member have a *MUTYH* gene mutation?

Our doctors and genetic counselors can help create a management plan.

Call Huntsman Cancer Institute's Family Cancer Assessment Clinic to learn more.

801-587-9555