

WHAT IS A BIOMARKER?

A biomarker is a piece of information about your health. Biomarkers include your blood pressure, your blood type, and cholesterol or blood sugar levels measured in a blood test. Biomarkers can tell your medical team important information about you and your cancer.

For colorectal cancer specifically, relevant biomarkers include:

- Substances released by your cancer into your blood
- Location of your tumor (whether it is on the right or left side of your colon)
- Changes (mutations) in the genes of your tumor cells, or in the genes of your whole body.

These mutations mostly occur in just you or your tumor, but some do run in families. 5% of colorectal cancers are hereditary.

5% ARE HEREDITARY

HOW ARE BIOMARKERS TESTED?

Biomarker testing is done by analyzing tumor biopsy tissue, blood samples, or other body fluids. Biomarker information can also come from radiologic imaging (CT scans, X-rays), or surgical reports.

Laboratory techniques are different for testing each biomarker and may include IHC (immunohistochemistry), NGS (next generation sequencing), PCR (polymerase chain reaction), and FISH (fluorescence in situ hybridization).



WHY TEST FOR COLORECTAL CANCER BIOMARKERS? WHAT ARE THEY USED FOR?

Colorectal cancer biomarkers can provide your medical team vital information about you and your cancer that is used to determine prognosis, guide treatment decisions, and monitor you after treatment. Biomarkers are also used in developing targeted therapies for colorectal cancer.

- **Prognosis:** Biomarkers can indicate the overall prognosis of your cancer and your risk of cancer recurrence.
- **Treatment decisions:** Biomarkers can reveal which treatments will be effective or ineffective against your cancer. Some biomarkers can indicate which treatments will cause you adverse or toxic side effects.
- **Screening and Monitoring:** Biomarkers can be used to screen people who are at high risk for colorectal cancer, and can be used to monitor you for cancer recurrence after treatment.
- **Treatment development:** Biomarkers are used to identify potential targets of colorectal cancer treatments.

WHO SHOULD HAVE COMPREHENSIVE BIOMARKER TESTING?

Everyone with colorectal cancer, no matter the stage at diagnosis, should have microsatellite stability/instability (MSS/MSI) biomarker testing. Microsatellite instability is also known as deficiency of mismatch repair (dMMR).

If you have stage IV/metastatic colorectal cancer, you should have testing for RAS (both KRAS and NRAS), BRAF, and HER2 biomarkers.

There are several biomarkers that don't currently have standardized recommendations for testing, including PIK3CA, tumor mutational burden, and NTRK gene fusion. Talk to your medical team about whether testing of these biomarkers would be beneficial for you.

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