Tumor Markers for Colorectal Cancer

Tumor markers, also called biomarkers, are made by cancer cells, or by other cells of the body in response to cancer. Tumor markers for colorectal cancer can be found in the blood. They are measured using a blood test or are found in the tumor tissue itself. Having a high level of a tumor marker could mean that cancer may be in the body. However, a high tumor marker level by itself is not enough to make a diagnosis.

Tumor markers may be used with other tests to help diagnose cancer, to predict prognosis after diagnosis, and can help in making treatment decisions. In colorectal cancer, tumor markers are most often used to test your response to cancer treatment or to watch for the cancer coming back (recurrence). A decrease in a tumor marker may mean that the cancer is responding to treatment. If there is no change or the tumor marker level gets higher, this may mean that the treatment is not working or that the cancer has returned. These results will be looked at with radiology tests, physical exam, and any symptoms you may be having.

There are some limits to the use of tumor markers. There are things other than cancer that can cause tumor markers to be high, so these must also be looked at when going over the test results. Also, not everyone with colorectal cancer will have a high tumor marker.

Your provider will suggest testing for tumor markers only if you need them.

Tumor Markers Found in the Blood

- **Carcinoembryonic antigen (CEA) level:** The tumor marker most often used in colorectal cancer. This level can be checked before surgery to predict prognosis, can be used during therapy to watch response to treatment, or when you are done treatment to watch for recurrence.
- **CA 19-9:** A blood marker that may be high in colorectal cancer.
- **Chromosome 18q loss of heterozygosity (18qLOH):** Often applied in patients with stage II or III colorectal cancer.

Tumor Markers Found in Tumor Tissue

- **MSI (microsatellite instability):** MSI is a way to measure a low level of mismatch repair (MMR) in tumor DNA. A low level of MMR leads to mutations (changes) within the colon cells, which can cause colon cancer.
  - MSI can be used to identify early-stage colon cancer that may need more aggressive treatment or to see which patients who should have further genetic testing due to the risk for a familial syndrome.
  - MSI identifies tumors as MSI-high (MSI-H) or MSI-Stable, and MSI-low.
- **K-RAS mutations:** Mutations in the K-RAS gene can help see if you can be treated biologic therapies.
- **BRAF mutations:** Often linked with a V600E mutation. BRAF mutations can help with prognosis after a colorectal cancer diagnosis.

Colorectal tumor markers may be measured to help see if you have cancer, if it has come back, or to see how well treatment is working. Talk to your provider about any questions you may have about tumor markers.

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